

THE IRON AGE

THURSDAY, AUGUST 1, 1889.

Foreign Investments in the United States.

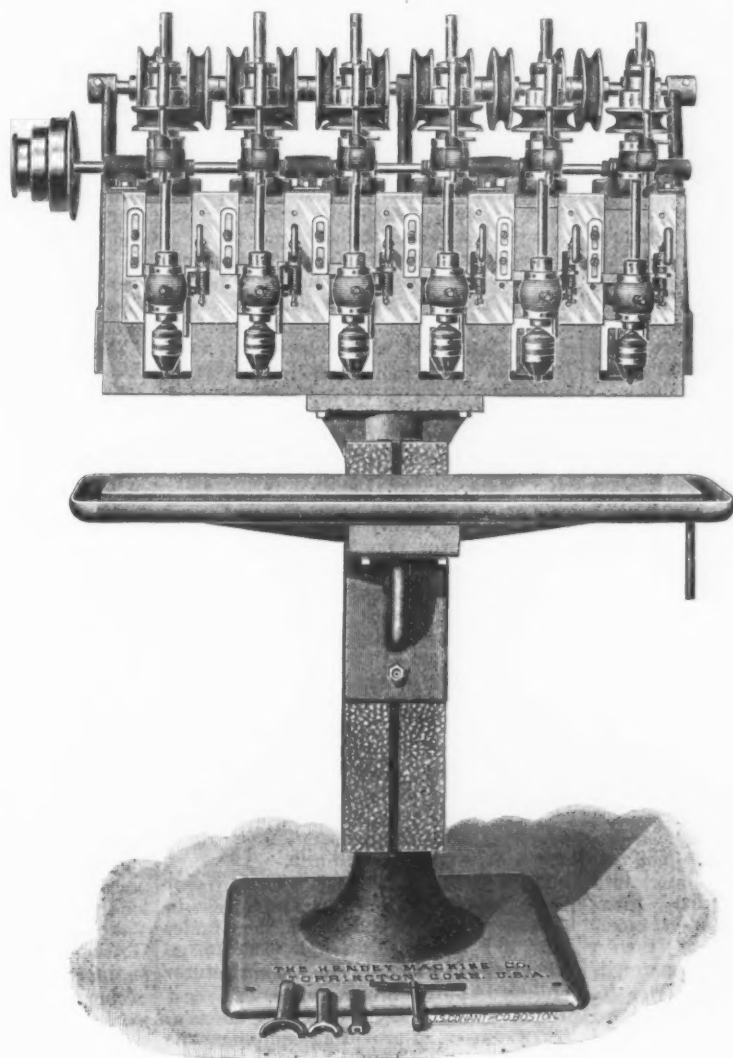
The abundance of foreign money seeking investment in the United States is not readily accounted for. The representative of a large firm of solicitors in London, who was in Washington a few days since, being questioned on this subject, replied that "investments were not being made with British capital alone, but that the entire Continent of Europe was sending

cliers of Europe of the stability of the American form of government and American institutions, and they felt convinced that money invested in this country would yield a handsome return and the capital would be perfectly safe.

Automatic Drill-Press.

The six-spindle automatic drill-press here illustrated is designed for the use of manufacturers of all kinds of hardware and

back of the spindle are simply idlers to carry the belts to countershaft on ceiling, which can be set in any position. The machine is provided with two countershafts, having a four-step cone each for change of speed for various sizes of drills. The speed of countershaft given will give a range of speed on the spindle of 250 revolutions per minute on slow speed and 1270 on fast speed. The table can be lowered on column to take in 18 inches. Speed of first counter from main line, 190 revolutions per minute. This machine is



SIX-SPINDLE AUTOMATIC DRILL-PRESS, MANUFACTURED BY THE HENDEY MACHINE COMPANY.

money to London to be invested in the United States. The money goes to London because that city is naturally the great financial center of the world; but France, Germany, Italy, and in fact the entire Continent was interested in the negotiations now pending in various parts of the country for the purchase of industrial concerns." He went on to explain that Great Britain and the rest of Continental Europe believed that it is only a question of time before all Europe would be involved in the greatest war the world has ever seen, and to provide for the proverbial rainy day money had been withdrawn from home investments so that it could be invested in this country. The marvelous recuperation shown by this country since the civil war and the way it had weathered domestic troubles had convinced the leading finan-

metal goods and can be made of any number of spindles required to suit special work. It drills holes to $\frac{3}{4}$ inch diameter, and spindle has down-feed of $2\frac{1}{2}$ inches. Each spindle is entirely independent of the others and may be stopped to change or sharpen the drill without stopping the machine or interfering with the other drills. The feed is automatic and can be set to feed any depth of hole up to its capacity, and when through its work the feed is released and the drill returns to place, ready for the operator to change the work and start it again.

The spindles are ground perfectly straight and true and run in bronze bearings; they are run by round belts in V-grooved pulleys and are so arranged that there is no strain of belts whatever on the spindles. The row of grooved pulleys

built by the Hendey Machine Company, of Torrington, Conn.

The great flood at Johnstown conclusively demonstrated the fact that the location of the town was a bad one. For years the people had been subject to damage by flood, and in May the waters carried away the main portion of the town and more than 6000 lives were lost with millions of property. These facts have suggested the rebuilding of the town in a new place, on a hill west of the old town and 300 feet above it. The Cambria Iron Company own the new site, which is fine table-land, and they have decided to transfer 600 acres to the Cambria Improvement Company, an inside corporation, who will lay out a new city under the direction of competent engineers.

AMERICAN ENGINEERS IN GERMANY.

(Editorial Correspondence.)

Bidding the officers of the Rothe Erde Works, Messrs. Kirdorf, Magery and Kintzle, a hearty farewell, the engineers proceeded to the zinc and lead works of the Actien-Gesellschaft für Bergbau, Blei und Zink fabrication zu Stolberg und in Westfalen. This long-winded title attaches to the

STOLBERG ZINC AND LEAD WORKS, an old-established producer, whose lead, spelter and sheet-zinc are well known in the American markets under the brand SS. The zinc-works of the company are equipped with six furnaces, each having 120 retorts on each side in their benches. The retorts themselves are 1.5 m. (4 feet 11 inches) long, 45 cm. (17½ inches) high, and 22 to 23 cm. (8 to 9 inches) wide. The charge every 24 hours is 8 tons, consisting of 90 per cent. of roasted blende and 10 per cent. of calcined calamine. The blende is roasted at the adjoining Rhenania Chemical Works, who utilize the sulphurous acid in the manufacture of sulphuric acid. A large part of it is derived from foreign sources, while the greater part of the calamine comes from Sardinia and Southern France, the ore being calcined at the mine, in order to lower the cost of freight per unit of metal by the expulsion of the carbonic acid. The daily output of the works is 22 tons, the yield of the ore averaging 54 per cent. of zinc. The life of the muffles is 35 days, while the prolongers last 14 days. The furnace itself has a life of about four years. After inspecting the furnace plant, the engineers visited the store-houses and then went to the rolling-mill, where two trains of sheet rolls turn out about 16 tons of sheet-zinc daily, the equipment in itself showing nothing that was novel. Particular interest was shown, however, in the machinery for manufacturing the muffles. Patented originally by a Belgian metallurgist, it has been introduced in Germany with great success. Aside from the saving in labor and the greater uniformity and accuracy of the retorts so far as their dimensions are concerned, one of the chief advantages is that the length of time required to air-dry the muffles is very considerably shortened. The result is that the stock carried is lessened, and less money is locked up in this way. The machine consists of a vertical cylinder, into which approximately the required quantity of carefully prepared clay is introduced. A cover is put on it, then a hydraulic plunger compresses the material, a second plunger having the interior dimensions of the muffle is forced upward into the mass, and finally the whole is forced up through a former having the desired shape for the exterior dimensions of the muffle. The correct length is cut off with a wire and the muffle is complete.

After visiting the zinc plant the party passed hurriedly through the extensive lead-works. The bulk of the lead ore, low in silver, comes from mines owned by the company, who, however, purchase largely in all parts of the world of rich silver and lead ores. These are crushed and carefully sampled. Your correspondent noticed one or two "wrinkles" which may be of some service. The heaps of fine rich ore as they lie in the yard are given a liberal coat of lime, which covers it with a crust, and meets the danger of having some of the valuable material blown away by high winds. The ore itself is handled in wheel-barrows. Throughout the stone-paved yard tracks are laid of flat iron, about 2 inches wide, which serve as runs for the wheelers, certainly a more permanent and better arrangement than the traditional plank. The lead-works themselves are very extensive, consisting as

they do of 18 Fortschaufelungs reverberatory furnaces for roasting, 8 blast-furnaces for smelting the roasted ore and by-products, a zinc desilverizing plant and silver cupelling and refining furnaces. After inspecting the works the engineers were entertained in the manner characteristic of German hospitality, and then they returned to Aix-la-Chapelle.

BURDENS OF THE EUROPEAN MILITARY SYSTEM.

During the drive to the above-described works your correspondent had the pleasure of a long conversation with one of the leading manufacturers of boiler-plate and boilers of Western Germany, a man of broad, liberal views. The talk drifted rapidly to a discussion of the burdens placed upon German industry by the necessities of the political situation. It is astonishing to an American to find how widely opinions vary concerning the effect of keeping under arms a large part of its population. We have heard intelligent men argue earnestly that it was a blessing rather than an evil. They urge that as it is Germany has a surplus working population, and in proof thereof point to the large annual exodus of some of its most vigorous and enterprising men. They view with approval the attempts made to divert this current of emigration into channels which will redound to the benefit and the glory of fatherland. The whole colonial policy of the Government is shaped with that object in view. They say: "If Germans will insist upon going to foreign lands, let us try to get them to go to colonies of our own. There our wayward sons will do work which will benefit both them and us. It will build up German commerce and extend German influence." This idea lies at the bottom of all the aggressive movements of the Government for some time past. So far as your correspondent has been able to learn it has borne little fruit thus far. Men who emigrate go where the chances of success are brightest. A paternal government cannot influence their choice, either directly or indirectly, by offering them superior inducements. Considerations of national statecraft are not likely to impress one who is seeking his fortune in a distant land. Provided he is given a fair show and feels sure that life and property are properly guarded, the color of the flag under whose shadow he lives makes little difference to him.

Those who argue that because labor leaves the country the maintenance in idleness of large bodies of men under arms is a blessing do not seem to go below the surface. The manufacturer referred to took a broader view. The cost of feeding the soldiers, of paying the salaries of officers, of providing equipment, he insisted, must ultimately be borne by those who work. It adds to the price of every article manufactured. It is an obstacle to competition with producers in other countries not similarly burdened. These are facts which, however, the ruling classes in Germany seem unable to understand. They are the employees of the Government whose future seems assured to them, since their salaries go on while they are in service and who receive a pension when they retire. Your correspondent detected some jealousy between them and the manufacturers whose incomes, when they are successful, are far beyond the modest emoluments of government employees. The latter are inclined to side in quarrels between employers and their men with the latter. Your correspondent was informed that judges show a tendency to mulct the manufacturers whenever disputes occur. The interference of the Government in the relations between labor and manufacturers is not regarded with favor. It is urged that if it is being done to cut ground from under the leaders and agitators of the so-

cial democrats, it is doing little or no good. Every concession granted increases their clamor for more. It is an acknowledgment that they were right before and gives color to their claim that they are demanding only what is just now. The recent colliers' strike in Westphalia illustrates the curious ideas which seem to prevail in government circles. The Emperor summoned representatives of masters and men, and assumed to settle their disputes for them. Your correspondent could very well see that manufacturers do not like that kind of interference, even though they do not say so.

How heavily the burdens of taxation rest upon them was strikingly illustrated in one case. A manufacturer told your correspondent that his municipal and State taxes amounted to 10 per cent. of his net income, aside from the taxes he paid as a partner in the concern in which he was interested. He paid in cold cash annually close upon \$2500 as his share to support a government which, it must be acknowledged, is the most economical and the most methodical in the world. Add to this the fact that, living on a volcano, he does not know from day to day whether his entire business will not be jeopardized, his sons and his best men be rushed to the frontier, and his whole future be subject to the frightful risks of war. No one in Germany doubts its final issue as little as he questions the fact that it must come sooner or later.

Calmly considering the situation as a deeply interested observer, your correspondent has been struck particularly with the evidences of prosperity shown in all directions, in spite of tremendous outlay of money and of labor. He has been able to appreciate better the lofty motives which made a well-known English general, whom he met in London, one of the most pronounced peace advocates. Thrifty and industrious as both the French and the Germans are, what wonderful development both would show if they could be relieved of the incubus under which both are staggering! Whatever convictions an American may carry home with him from a brief visit to Europe, none should be greater and more enduring than that of gratitude for immunity from danger to peace. We can well afford to pay many millions of dollars every year for naval equipment and coast defense. To what extent preparations are carried in Europe may be gathered from a fact your correspondent observed in a hasty trip in Switzerland. After riding up the beautiful Reuss Valley to the Goeschenen portal of the St. Gotthard Railroad Tunnel, to study the engineering features of that great undertaking, your correspondent drove further along the old highway to Andermatt, near-by the crest of the pass. At one point in the gorge a large number of men were seen doing some inexplicable work on both sides of the serpentine road. On inquiry it was found that they were building fortifications along the Alpine mountain pass, many thousands of feet above the sea, in close proximity to the line of eternal snow!

THE COLLIERY ZOLLVEREIN.

During the absence of the gentlemen who had visited Stolberg, Mr. Parker, American Consul at Aix-la-Chapelle, took charge of the ladies of the party, conducting them personally to all points of interest in the ancient town. Later in the day the engineers reached Düsseldorf, making their headquarters at the Hotel Heck. They were received by a number of their hosts, prominent among whom was Herr E. Schroedter, secretary of the Verein Deutscher Eisenhuetten-Leute and one of the editors of that model publication, *Stahl und Eisen*. Mr. Schroedter's devotion to the comfort, enjoyment and instruction of the Americans was untiring. He endeared himself with

all, including—may it be indiscreetly added?—the ladies. Indefatigable himself, the only possible reproach might faintly grow out of the assumption evidently made that the elastic limit of his guests was as wonderfully high as his own and that of his associates.

Wednesday morning the serious business of sight-seeing began with a visit to the shafts of the colliery Zollverein, the property of the Haniel family, two members of which, Franz Haniel and Hugo Haniel, received and accompanied the visitors. The first plant inspected was that of No. 3 shaft, a double shaft, the sinking of which was begun in 1880, being completed to the first and second levels in 1882 and to the fourth and fifth levels in 1883, the latter level being nearly 950 feet below the surface.

a gridley of the Briart screen type. The lumps travel on to an endless picking-table, along which are stationed a number of boys who are paid by the quantity of slate they take out. The lower end of this picking-table is hinged so that it can be raised and lowered. When the car into which the lumps are to be delivered is empty the end of the table is lowered so that the drop is not too great and the lump coal is not broken. The screenings of the Briart screen are elevated to a rotary screen which does the sizing preliminary to jiggling. The cleaned coal is delivered into pockets, underneath which are the car-tracks. The colliery is so located that there is not much room for sidings. The cars are therefore transferred from track to track in a very simple manner. A section of the tracks is provided with a



TUBE-SOLDERING MACHINE, BUILT BY NIAGARA STAMPING AND TOOL COMPANY.

The whole plant has in an exceptional degree that wonderful air of solidity which is so characteristic of German collieries, contrasting its handsome brick and iron buildings with the board houses of our own coal mines. The shaft is equipped with two very handsome double-cylinder hoisting-engines with 940-mm. (37-inch) cylinders, 1.88-m. (74-inch) stroke, cutting off at one-half. The drums, double-acting, are 8 m. (26 feet 3 inches) in diameter, while the sheaves are 5 m. (16 feet 5 inches), the diameter of the rope being 37.5 mm. (1½ inches). A round trip of the cages to the lowest level takes about two minutes. Each engine runs two sets of cages, in four decks, with one ¼-ton car each, which now are all unloaded at one platform. We understand, however, that two loading and unloading platforms are to be arranged. No. 3 shaft, which is producing 1500 tons of coal per day, has a capacity of 2500 tons. The mine cars are run on to automatic tipples, the coal dropping on

transfer-table with a small hoisting-engine and boiler. Upon this the car is drawn by a small wire rope, and running laterally takes the car to any desired track. After the usual greeting the party went to the Nos. 1 and 2 shafts of the same company, some distance away, inspecting on the way the workmen's dwellings, neatly arranged brick houses, of which there are 618 of different sizes, each with a bit of land, rented to the miners at a low figure. No. 1 is an old shaft sunk in 1847, while No. 2 was put down in 1850. Recently a works for the manufacture of briquettes has begun operations, and the plant possesses besides 50 Coppée coke ovens, yielding about 60 tons of coke a day. Among the machinery one dynamo, practically a part of the fly-wheel of the engine driving it, attracted particular attention. It is designed by the Helios Company, of Ehrenfeld, near Cologne. After partaking of a luncheon tendered by the Messrs. Haniel, who underwent the usual cheers, the party left for Galsenkirchen.

Tube-Soldering Machine.

In the accompanying cut we show a general view of a tube-soldering machine recently improved and placed upon the market by the Niagara Stamping and Tool Company, of Buffalo, N. Y. In operating this machine the tubes are formed on a tube-former or set of rolls, and are then pushed over the expanding mandril in the center of the clamps, which are shown closed in the engraving. The tube being in position, the lever shown to the left of the cut is turned one-quarter, which expands the mandril by forcing a wedge-shaped tongue into it. At the same time the jaws are firmly clamped together, leaving an interstice along which to run the soldering-iron, which completes the operation. The lever is then thrown back, which draws the wedge-shaped tongue from the flexible mandril and allows the soldering-tube to be easily withdrawn.

The Corbin Steamship Project.

Relative to the Corbin scheme of establishing an American line of steamships to run between Liverpool and Montauk Point, the *Booklyn Eagle* says:

English capital will be largely invested in the enterprise. George M. Pullman, the founder of the Pullman Palace Car Company, has been approached by Sir William Allan and the Rothschilds, of London, and asked to go into the proposed company with them. Mr. Pullman expressed his approval of the plan and its profit and feasibility, and said that he felt flattered at being asked to invest, but would be compelled to decline, on the ground of age and various engrossing business interests. Mr. Pullman said that if he had been approached 20 years ago, while he was yet young and ambitious, he would have had no hesitancy in accepting the proposition. Some other rich American will now be asked to go in. Mr. Corbin will have no trouble in getting English capital, judging from his past experiences in that direction. The Corbin Banking Company, of which he is the head, have invested many millions of English capital in American land and buildings. Through Mr. Corbin, who is not an Englishman, but a Bostonian, the Long Island town of Babylon has been practically developed and built up by English capitalists. The Duke of Argyle has invested a large fortune through Mr. Corbin. It is understood that Mr. Corbin's actual interest in the contemplated company will be very small. He occupies the position of a promoter. He will be chiefly concerned in the benefit which his Long Island Railroad will derive from the presence of the terminal at Montauk Point.

World's fairs are big undertakings as they are managed now. The Philadelphia exposition in 1876 received an appropriation of \$1,500,000 from the city of Philadelphia, \$1,000,000 from the State of Pennsylvania and a loan of \$1,000,000 from the general Government, beside a guarantee fund of about \$2,500,000 from individuals. About \$5,000,000 of this sum was spent on the buildings and the remainder on the grounds. The general expense account was a trifle under \$2,000,000, while the total receipts were \$5,000,000.

The Great Bear River Canal in Utah and Idaho will be one of the grandest irrigative projects in America, for which \$2,000,000 has been provided. Besides a tunnel 1200 feet in length, it will be necessary to remove 220,000 cubic feet of solid rock. The canal will irrigate 200,000 acres in Salt Lake Valley and 600,000 acres on Bear River. The reservoir for the canal covers 150 square miles.

Cornish or Double-Beat Pump-Valves.*

In the earlier studies of the writer there were few problems which perplexed him more than to find a satisfactory theory for

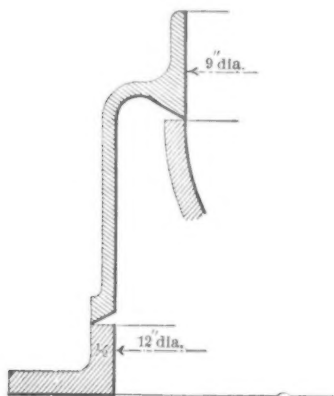


Fig. 1.

the construction of a double-beat pump-valve. The text-books were silent on the subject and engineering journals contained only illustrations without sufficient data for any analytical investigation. Hence

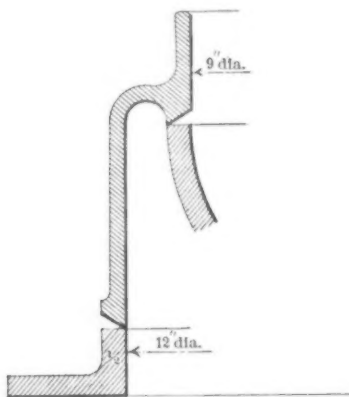


Fig. 2.

he had to gather what facts could be found and attempt to formulate a theory. Valves were found with seats nearly an inch in width, sometimes flat and sometimes beveled. The unbalanced area was

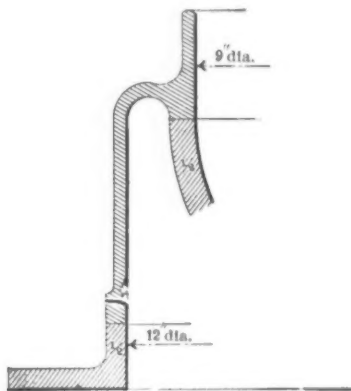


Fig. 3.

rarely determinable and the weight was never given. The possible lift was frequently noted, but whether the valve ever reached this limit was not recorded.

* Abstract of paper read by A. F. Nagle at the Erie meeting of the American Society of Mechanical Engineers.

Sometimes valves were known to rise with such force as to break the stop provided, and then again they would seat with such violence as to endanger the safety of the pump. There seemed to be no intelligent practice on the subject, and the problem was evidently one which theory could not solve, and the only way was to make something and then experiment with weights, springs and air snifted or pumped in until something passably good was ar-

yet worse case if the bearing should be perfect over its entire surface, like Fig. 3, where it may approximate to a vacuum between the faces. Upon the supposition of this extreme condition, an illustrative case will attract attention as the possible explanation for the violent and noisy action of many double-beat valves. Assume a valve whose lower seat inside diameter is 12 inches and upper outside diameter 9 inches, width of seats $\frac{1}{4}$ inch, and a water-

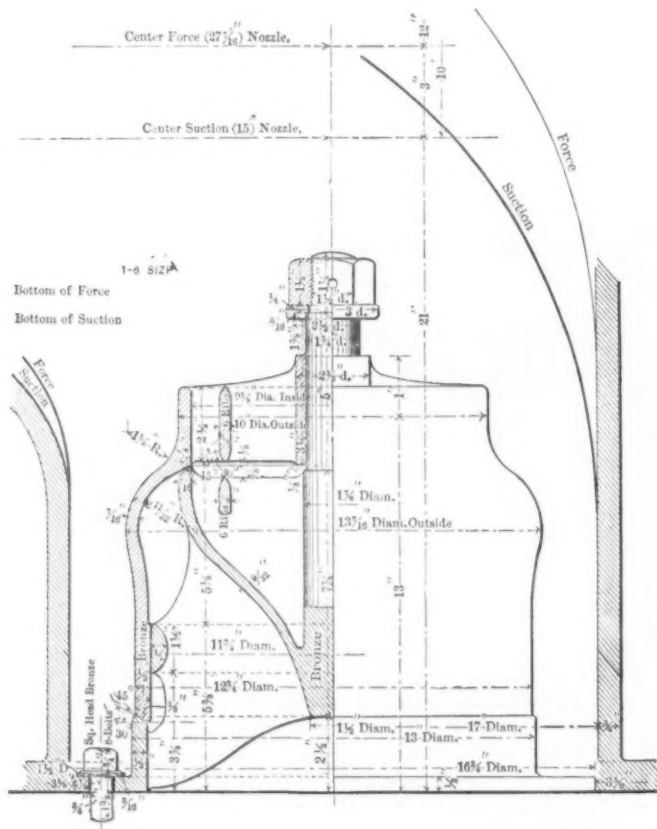


Fig. 4.—Valves of Hope Pumping-Engine, Providence, R. I.

rived at. The principal features into which the subject appeared to divide itself were: 1. The width of seats. 2. The unbalanced area. 3. Its weight. 4. Its lift. 5. Its form of body.

THE WIDTH OF SEAT.

What should be the width of a valve-seat? Theoretically a knife-edge, so that the same area should be presented to the water-pressure before as after it is lifted. Practically only sufficiently wide to sustain the pressure brought to bear upon it without injury to the metal. Brass should sustain a pressure of at least 1000 pounds per square inch of surface with safety and permanency. This is less than one-thirtieth of its crushing strength and only about two-thirds the pressure brought upon crank-pin journals. The comparison with a revolving journal is not perfect, but if the valve seats gently, as it should, 1000 pounds per square inch would not seem to be too great. Upon this basis my valve would have less than one-quarter the width of seat of any known previous practice. I knew of no reason why the seat should be flat, for it is much more likely to lodge dirt or sand than a beveled one, and the latter would also be more conducive to an easy flow of water.

THE UNBALANCED AREA.

With a wide seat it is impossible to know exactly what the unbalanced area of a valve really is. It may be that of either extreme between the inside or outside diameters, as indicated in Figs. 1 and 2, or it may be a

pressure of 80 pounds per square inch. We now find

	Square inches.
The area of 13 inches =	132.73
The area of 9 inches =	63.62
Unbalanced area by outside diameters..	69.11
Area of 12 inches =	113.10

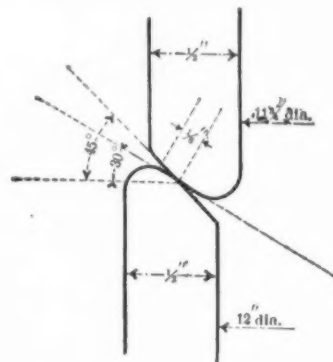


Fig. 5.—Full-Size Section of Seat of Fig. 4.

Area of 10 inches =	78.54
Unbalanced area by inside diameter $\frac{1}{2}$ =	34.56
Seat area 100 per cent. of inside unbalanced area, and about $80 \times 69.11 \div 34.55 =$	160 pounds pressure per square inch of surface.

Extreme pressure required to open the valve, exclusive of its weight, is $(80 + 15) \times 69.11 \div 34.56 = 190$ pounds per square inch, more than double the static or normal

pressure. If we assume but a slight air-pocket inside of the valve, in which the air will be compressed to this great pressure, is it not evident that at the instant of opening the valve will be projected upward with great force? Even if we do not assume a vacuum to exist between the faces, it is still certain that something less

the velocity of discharge through it. If the valve is large in diameter compared with its lift, so that the velocity of approach be so small that it could be ignored, and its form of such gentle curves that no violent impingement occurs, then it would seem that the weight per square inch of unbalanced area must govern the

proach very great, then the calculation for its action would be very complicated.

ITS LIFT.

This is practically answered in the last section. The velocity being determined by the weight, and always the same for the same weight, then its lift would natu-

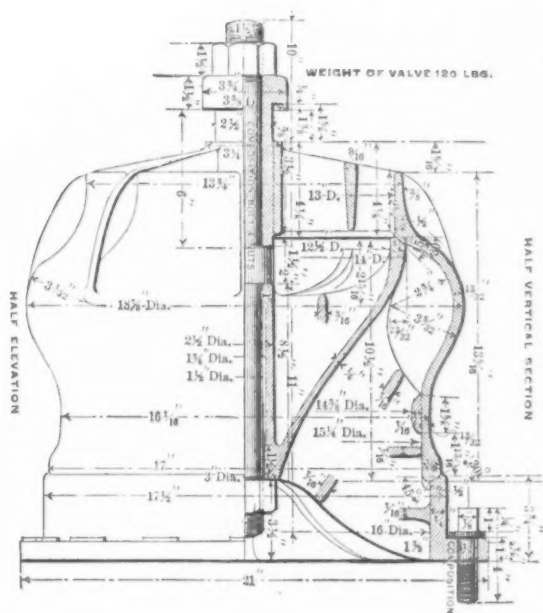


Fig. 6.—Valves of Cornish Pumping-Engine at Providence.

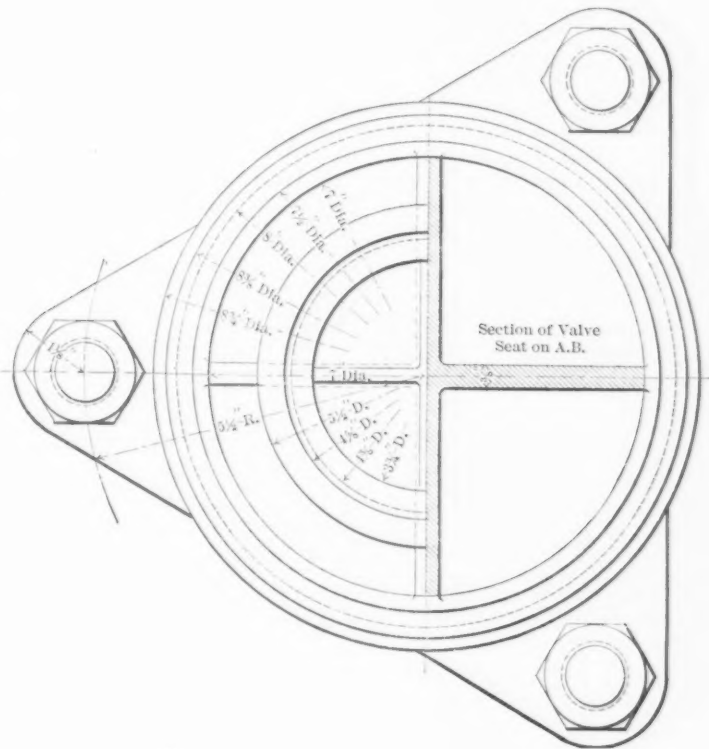


Fig. 8.—Section on Seat A B of Fig. 9.

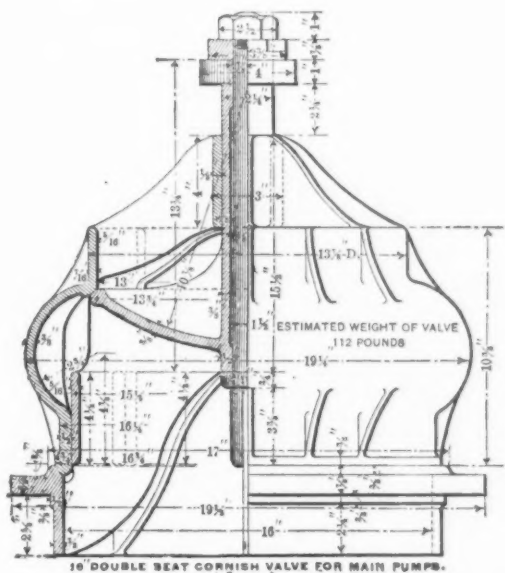


Fig. 7.—Valve of St. Louis High-Service Engine.

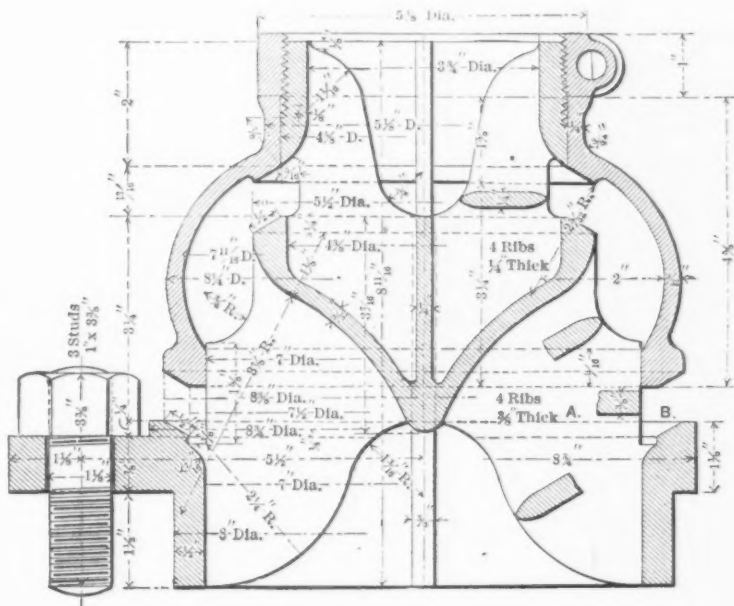


Fig. 9.—Milwaukee Water-Works Pump-Valve.

than the normal pressure must be between the faces, or the valve would be in a leaky condition; and hence there must inevitably be required a greater pressure per square inch to start the valve than exists outside of it, and this condition is one which accounts for the shocks and noise of these valves.

THE WEIGHT OF THE VALVE.

I thought it was the weight of the valve, if free to move, which determined

flow or velocity; for it is this weight which is the equivalent of a pressure upon the water within the valve which causes the outward flow. And if this theory were correct, then the flow through it would have the same velocity at any position it might be in, and the valve should rise and fall in exact proportion to the changing velocity of the plunger. If, on the other hand, the valve be of irregular form, very light, and the velocity of ap-

proach very great, then the calculation for its action would be very complicated.

$$v = 8.03 \times \sqrt{h},$$

$$v = 12.20 \text{ feet per second.}$$

The size of the plunger and its velocity and the number valves now determine the lift of each valve.

FORM OF THE VALVE.

First of all there should be no air-pockets, such as are possible in such forms as are shown in Figs. 1, 2, or 3. The curves

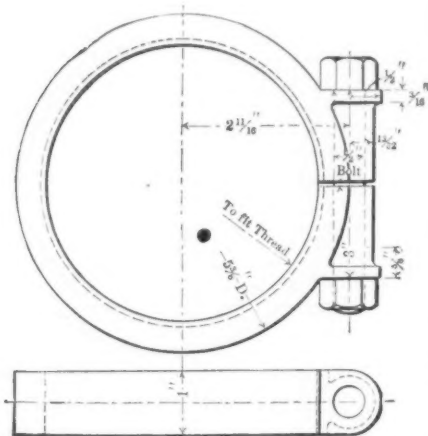


Fig. 10.—Stop-Ring of Valve, Fig. 9.

should all be of easy lines in order to avoid impact, it being reasoned that flat surfaces, particularly at the upper end of the valve, would cause an impact which would make the valve rise more than due to the pressure produced by the velocity. An extreme view would be that if a square

ing plunger-pumps. For full description of this engine see *Franklin Institute Journal* for September, 1876. The plungers are 17 inches in diameter and 4 feet stroke, and the greatest speed about 20 revolutions per minute. All the valves were of the same size, and only one for each inlet or outlet, and that was 12 inches in diameter at the lower seat and 9 1/2 inches at the upper. The seats were designed to be 1/2 inch wide, but the seats, not the valves, were actually chamfered so that only 1/8 inch bearing-surface remained.

Fig. 4 is a vertical section of the valve and Fig. 5 a full-size section of the seat.

The weight was 53.44 pounds in water, one-third less than in the air. Mean net water-pressure = 52 pounds; lower seat outside diameter, 12 1/4 inches = 127.68 square inches; lower seat inside diameter, 12 1/2 inches = 122.72 square inches; upper seat outside diameter, 9 1/2 inches = 65.40 square inches; upper seat inside diameter, 9 3/8 inches = 69.03 square inches; net outside unbalanced area = 62.28 square inches; net inside unbalanced area = 53.69 square inches; seat area = 8.59 square inches.

The seat area is only 16 per cent. of inside area, and only $52 \times 62.28 \div 8.59 = 377$ pounds pressure per square inch of surface.

Upon the theory of a perfect seating, the pressure required to open the valve would be $62.28 \times (52 + 15) \div 53.69 = 77.31$ pounds.

I confess that I am somewhat skeptical as to the possibility of such perfect seating of a ground-valve as to produce the

it should have been 12.20 feet per second. It proved to be fully 20.00 feet per second.

INDICATOR DIAGRAMS OF THE VALVES.

Indicator diagrams taken directly from the valve showed:

First.—That the width of a valve-seat could safely be brought to a very narrow surface, probably much less than I made it (1/2 inch), for the pressure in this case was but 377 pounds per square inch of surface.

Second.—That the lift of a valve is exactly proportioned to the velocity of the plunger, if it is not too light so as to be brought to its stop before the maximum velocity of plunger is attained. The deviation from this theoretical curve, as shown in the cards, is attributable to the friction of the stem running to the indicator, and possibly somewhat to seat area, small as it is.

Third.—That in the form of valve shown, the theory that the velocity of the water through the valve is that due to the head corresponding to the weight of the valve per square inch of unbalanced area did not prove to be very near the truth. I can conceive of but one reason for this great variation from the theory assumed, and that is the effect of the horizontal issuing stream diminished the vertical pressure. I think it is not improbable that there is a mathematical demonstration for the resultant vertical force due to an issuing horizontal stream from a curved aperture, and express correctly the relation of lift to weight, but I have not attempted to solve that problem. I do not

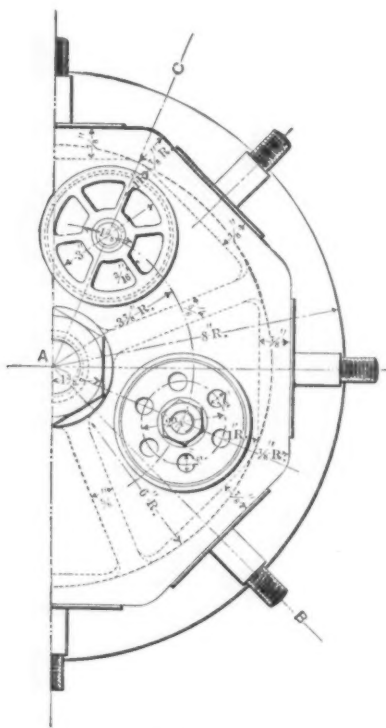


Fig. 11.

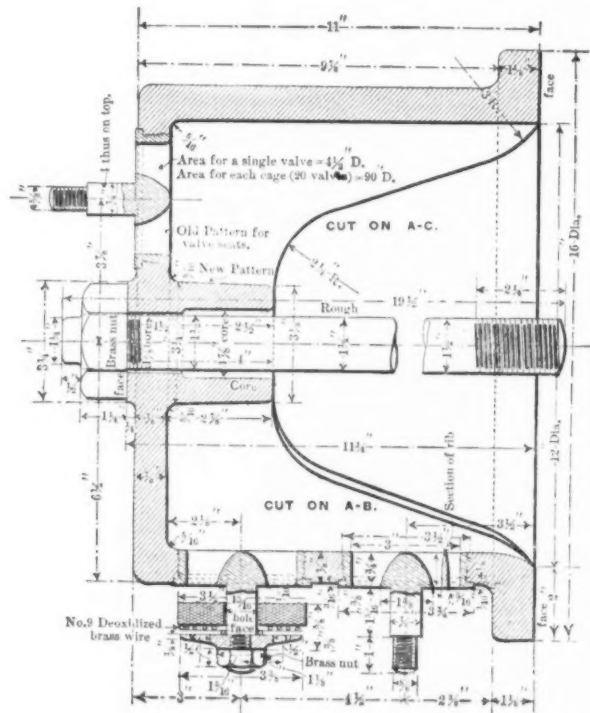


Fig. 12.

THE REYNOLDS STANDARD RUBBER VALVE.

elbow, or right-angled turn, were made at the upper end, the pressure would be double that due to the velocity, comparing the effect with the relation of square elbows to easy bends in pipes.

With these theories in mind I constructed the pump-valves for the high-service pumping-engine at Providence, R. I. The engine is of the vertical compound type, with cranks exactly opposite each other (the first instance of the kind in this country, I believe, 1874) and geared 1 to 5, driving two horizontal double-act-

condition of a vacuum, but somewhere between a vacuum and the water-pressure it must be, and I have assumed this extreme condition the better to illustrate a theory.

These valves worked noiselessly at the greatest speed, and after six months' run the grinding-marks were not worn away.

It will be observed that the valve weighed just about 1 pound per square inch of inside unbalanced area, and hence, if the theory advanced in section 3 were correct, the velocity of the water through

think that the friction of stem or force of spring is sufficient to account for deviation.

The valves were symmetrical and round in form, and were afterward turned down and reduced in weight to 35 pounds in water, or 0.66 pound per square inch of inside unbalanced area, but I regret that I took no further diagrams. The narrow seats and the quiet action and the synchronous motion with the plunger were the more important features in my mind at that time, and the question of weight of valve was left to experiment, after all.

OTHER DOUBLE-BEAT PUMP-VALVES.

The valves for the Cornish pumping-engine at Providence, R. I., were made of substantially the same design as the one just described for the high-service engine. The dimensions and form are shown in Fig. 6. Its seats were chamfered in the same manner to about $\frac{1}{8}$ inch in width, and the valves always worked well, although nothing is known of the pressure required to operate them. The valve weighed in water, per square inch of unbalanced inside area, 1.28 pounds; outside area, 1.11 pounds; and seat area about 12 per cent. of inside area. Water-pressure 80 pounds. Pressure upon seats, 680 pounds per square inch.

ST. LOUIS HIGH-SERVICE VALVE.

I do not know who designed the valves for this engine, but I am in possession of a drawing of one, which is shown in Fig. 7. From the data given I find that its weight in water per square inch of inside unbalanced area is 1.86 pounds, and for outside unbalanced area is 1.12 pounds.

On the drawing is this indorsement: "These valves are working under a pressure of 90 pounds per square inch, seat with very little noise, and give perfect satisfaction at the St. Louis Water Works, November 27, 1873."

Seat area is 67 per cent. of inside area, and pressure per square inch about 250 pounds.

MILWAUKEE WATER-WORKS PUMP-VALVE.

I am indebted to Mr. Edwin Reynolds, general superintendent of the E. P. Allis & Co. works and a member of this society, for a full description and drawing of this valve. It is reproduced to scale in Figs. 8 and 9.

Its weight in water per square inch of inside unbalanced area is 40 pounds; outside unbalanced area is 21 pounds. Its seat area is 88 per cent. of inside area. Water-pressure 53 pounds. Pressure per square inch on the seats, about 120 pounds, which is exceedingly light. Plunger 21 $\frac{1}{2}$ inches in diameter, 3 feet stroke, and maximum revolution 25 per minute, or 3.92 feet per second. There are ten valves for each end of the pump. Maximum possible lift of valve, $\frac{1}{8}$ inch; valve-opening about $\frac{1}{8}$ inch.

Proceeding in a similar manner as followed in calculating the relation of plunger velocity and flow of water through the valves in the case of the Providence high-service engine, we find, upon the supposition that the valve reached its full possible lift, that the velocity through the valve was 5.68 feet per second, but what evidence is there that the valves reach this limit? Thanks to the indicator for dispelling this illusion. If it be assumed that the marks on the stop show that valves reach it, I do not think that conclusive evidence; for, as already pointed out, a broad seat can have the effect of throwing the valve up to a great height, and yet recede again as soon as open.

Mr. Reynolds writes me in explanation of the action of these valves as follows: "You will notice the stop-rings (Fig. 10) are screwed on, which allows the lift of the valve to be adjusted in order to make it work at its quietest point. At high speeds (say 200 feet per minute) the valves are somewhat noisy, but in a pump with a valve area equal to 75 per cent. of plunger area and at a speed of 100 to 125 per minute the valves are practically noiseless."

Unless I had positive evidence to the contrary, such, perhaps, as is only obtained by the aid of the indicator, I should doubt very much whether these valves ever lifted $\frac{1}{8}$ inch. And the noise that begins to manifest itself at the higher speed I should attribute to the broad seats, as already explained to be possible.

With such broad seats there is the constant uncertainty in one's mind whether to

refer the unbalanced area to the inside or outside diameters. If we take it at the inside diameters, and approximately take the pressure producing the velocity through the valve at three times its weight, as shown by the cards to be nearly the ratio, we find the velocity of the issuing stream to be about 13.2 feet per second, instead of 5.68 feet if wide open, and hence its lift only about $\frac{3}{8}$ inch. If taken at the outside diameter, we find the velocity to be about 9.67 feet per second and its consequent lift about $\frac{1}{2}$ inch.

CONCLUSIONS.

These double-beat valves have been used as long as the Cornish pumping-engine itself and with more or less satisfaction. I presume it is possible to make them work very well under a great variety of conditions; but there is one feature in which they are necessarily defective—namely, the lift must always be quite large unless great power is sacrificed to reduce it. It is undeniable that a small lift is preferable to a great one, and hence it naturally leads to the substitution of numerous small valves for one or several large ones. To what extreme reduction of size this view might safely lead must be left to the judgment of the engineer for that particular case in hand, but certainly, theoretically, we must adopt small valves. Mr. Corliss at one time carried the theory so far as to make them only 1 $\frac{1}{8}$ inches in diameter, but from 3 to 4 inches is the more common practice now. A small valve, it must be remembered, presents proportionately a larger surface of discharge with the same lift than a larger valve, so that whatever the total area of valve-seat opening, its full contents can be discharged with less lift through numerous small valves than with one large one.

I do not intend to speak of rubber valves in this paper, but the study of the subject leads up to it so naturally that I shall dwell on it a moment. I think that to Mr. Henry R. Worthington belongs the honor of first using numerous small rubber valves in preference to the larger metal valves he found in general use. Since that time to this day what has not been done with this vital organ of the machine? It seems as if at times engineers thought that because they were making large pumps they must necessarily make large valves, and hence we find examples of valves 3 and 4 feet in diameter. It must be extremely gratifying to the friends of Mr. Worthington to find that the latest practice of one of our most successful engineers, Mr. Edwin Reynolds, is that of Mr. Worthington many years ago, and that he is using now numerous small rubber valves of almost a standard pattern for all of his late pumping-engines. I am indebted to Mr. Reynolds for a drawing of this valve, and it is reproduced in Figs. 11 and 12. You will observe that in order to obtain the maximum valve area in minimum space a number of cages, or hats, are erected, around which the small valves are placed.

It is needless to say that these valves work well under all the conditions of a city pumping-engine. If at first thought the large seat area would seem to be objectionable for the reason given in the case of a metal valve, I think we can find an explanation for their better action in the fact that the softer material permits of a gradual application of the water-pressure underneath the seat, while with the metal valve it is necessarily sudden. A volute spring is generally used to limit the rise of the valve, but an indicator diagram of its actual lift and rate of lift would be instructive. This could be obtained best from the suction-valves if the pump were located in a well without any pipe connection, and in that case no stuffing-box would interfere with the free lift of the valve.

The Proposed World's Fair.

The proposal to hold an international exposition in New York City in 1892 has received a substantial impulse from the simultaneous action of Mayor Grant and the leading commercial bodies of the city, so that now the movement is fairly inaugurated. A week ago, July 25, in response to invitations extended by Mayor Grant, 290 representative business men of the city assembled in the Governor's room at the City Hall. The Mayor, in introducing the subject of the meeting, said: "The event which we are to commemorate is the discovery of a new world. The city of New York is the capital of this new world, and in my opinion it is the fittest place to hold this celebration. It is the largest, richest and most accessible place in America. The year 1892 will be a convenient as well as a most appropriate time. Should you conclude to take action it should be taken at once, because there are other cities who are anxious to have the celebration held at their place."

William M. Spear was made secretary, and on motion of Roswell P. Flower, the Mayor was elected permanent chairman. President J. Edward Simmons, of the New York Board of Education, then moved that it be the sense of the meeting that a world's fair be held in New York City in 1892. This motion was received with enthusiastic applause and unanimously carried. Next it was resolved that the committee be named "The Committee for International Exposition of 1892."

After discussion President Charles S. Smith, of the Chamber of Commerce, offered a resolution providing for the appointment of four committees of 25 each—one on Permanent Organization, one on Finance, one on Legislation, and another on Site and Buildings. Ex-Governor Cornell said the question of site would be attended with fierce controversy and advised delay, but Roswell P. Flower thought it best to organize these committees at once, and Mr. Smith's motion was carried, whereupon the meeting adjourned subject to the call of the Mayor.

The Chamber of Commerce likewise adopted resolutions to the effect that there should be held in New York an international exposition worthy of the dignity and position of the United States, in which respect our exhibits in the international exhibitions abroad, with few exceptions, have been inadequate, and that the general Government as well as the State of New York and the city should contribute the money required. A committee of 60 was appointed in furtherance of these objects. The Spanish-American Commercial Union also resolved to cordially co-operate.

Wealth of Australia.

The enormous wealth of Australia is well illustrated by a comparison of the bank statements of that group of colonies with those of Canada. The figures of the former are for the quarter ending with March last, and those of the Dominion for the month of June:

	Australia.	Canada.
Circulation.....	\$27,101,515	\$31,203,972
Deposits.....	516,175,460	136,293,976
Specie.....	89,935,080	17,095,911
Loans.....	644,818,355	192,582,914

The deposits in the Australian banks are nearly four times as large as in those of Canada, and the loans more than three times as large. The population of the seven Australasian colonies at the close of last year reached 3,672,500, as follows: Victoria, 1,090,869; New South Wales, 1,085,356; Queensland, 387,463; South Australia, 313,065; Western Australia, 42,137; Tasmania, 146,149; New Zealand, 607,380. This gives an average deposit of \$140 per head, whereas taking the popu-

lation of Canada at 5,000,000 the average of deposits in the chartered banks and various savings-banks is about \$40 per head, or less than one-third that of Australia. The aggregate capital of the Australian banks reaches \$83,860,000, as compared with \$60,236,000 in Canada, and the reserve funds \$38,125,000, as against \$20,000,000. The proportion of accumulated profits to capital is thus 45½ per cent. in Australia and 33 per cent. in Canada.

Power Hammer.

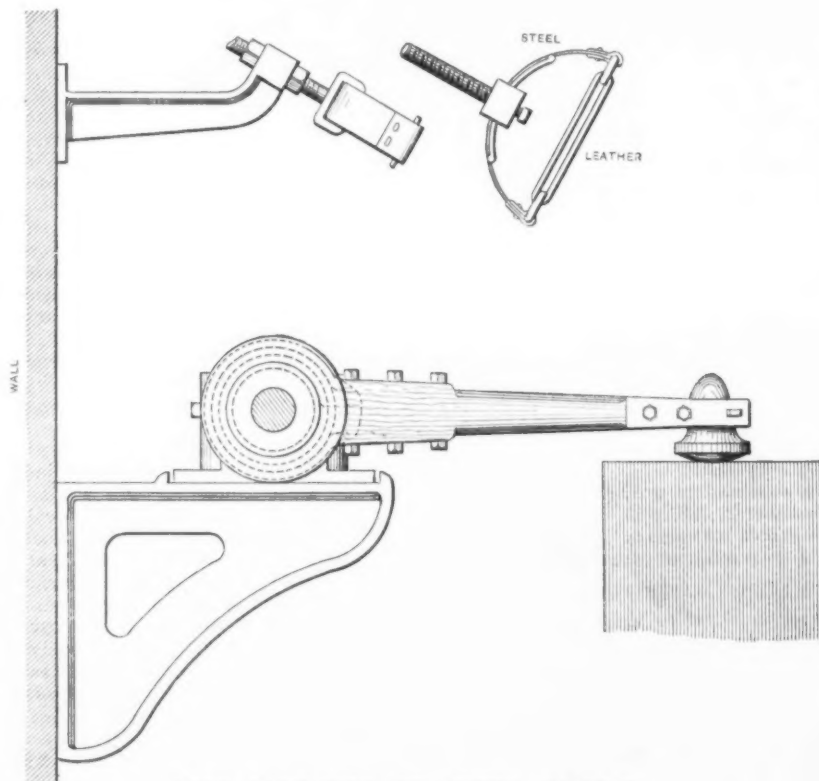
The new form of power hammer of which we herewith present drawings is the invention of and is manufactured by Henry B. Hughes, 2035 North Sixteenth street, Philadelphia, Pa. The bracket carrying the hammer proper and that carrying the rebounder are bolted to the wall, as shown in the side elevation. The hammer is operated by means of a revolving shaft provided with a suitable clutch mechanism which is engaged and disengaged by a foot lever. The rebounder, against which the hammer strikes when it reaches the upper end of its stroke, is formed of a bow spring having its ends united by a strip of leather. The shank carrying the rebounder is threaded, in order that the location can be adjusted as required. Any number of these hammers can be swung from a line shafting supported in the ordinary manner by means of hangers or wall brackets, thus dispensing with cumbersome housing or foundations, and securing economy of space and facility of operation.

The Wonderful Growth of Our Cities.

There is clustered in and around the port of New York a population of over 3,000,000. In 1880 Manhattan Island contained 1,200,000 residents. This year's directory estimates the population of the city, including the annexed district, at 1,750,000. A more conservative estimate would be 1,600,000. Brooklyn has grown very rapidly, and contains now a population of over 800,000. In Jersey City and Hoboken, in 1880, there were 150,000 souls; there is now probably a population of 235,000. Yonkers rests on the edge of

of 3,000,000 for the city and its environs, therefore, does not appear unreasonable. In 1892 it is probable that the total will be nearer 3,500,000. These statistics are of interest now in view of the agitation of the world's fair project. It begins to look very much as if notwithstanding London's

rapid increase of the urban population of the United States becomes quite as remarkable as that which is going on in the metropolitan district. The twin cities of Minnesota have reached in a few decades the point attained by New York in two centuries. What they will do in the future can only



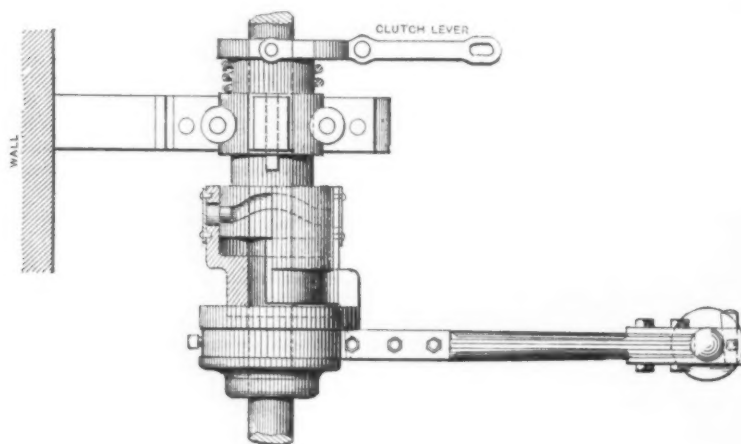
SIDE ELEVATION OF POWER HAMMER.

enormous lead in the race, the next generation would see on and around Manhattan Island the greatest mass of population known in the history of the world. It is already second only to the wonderful city on the Thames.

After dealing with such stupendous and matchless figures it seems of little consequence that an informal census taken by the directory canvassers shows the popula-

be conjectured, but it is certain that there will be many centers of population in the interior of the United States larger than all but a very few of the historic cities of Europe.

This is not merely a result of the rapid growth of population in the country as a whole. It means an accumulation of wealth and a development of diversified industries unrivaled in any other part of the world. Great cities are numerous, in proportion to the rural population, only where wealth abounds and civilization is most advanced. Russia has fewer and England more than any other country of Europe. Africa has scarcely any but Australia an amazing number for a region so sparsely populated. Great cities bring their burdens and perils. In them vice festers and poverty abounds, but, nevertheless, they are the focal points of the energies working for the advancement of mankind, and where they flourish and multiply progress is sure to center.



PLAN VIEW OF POWER HAMMER.

this city with over 20,000 population. These figures aggregate 2,550,000, and to this total might be added the suburban population on Long Island, Staten Island, Westchester and Rockland counties and in the near districts of New Jersey. Newark, which is really an adjunct of New York, claims a population of 175,000. Paterson contains about 76,000 residents, and Elizabeth over 30,000. The estimate

tion of St. Paul, Minn., to be 193,247, a gain of 151,774 since 1880. When it is considered, however, that Minneapolis, the municipal limits of which city join those of St. Paul, has made an equally rapid growth, now claiming 235,000, and that the census next year will probably show an aggregate population of 430,000, where there were less than 90,000 persons living ten years before, this instance of the

Although specie exports from New York alone since April 27 exceed \$38,000,000, the actual cash in the United States Treasury has not diminished and the loss of specie by the New York banks is comparatively small. Where, then, does the money come from? A contemporary answers: "About \$31,900,000 of it has come from the country, the mines supplying such part as the Treasury has added to its coin and bullion—about \$15,500,000 apparently—and the rest being taken in some form from the circulation. Or, deducting the sum added to Treasury cash, the statement may be put thus: Taken from the banks, \$5,700,000; from the mines for export, \$12,900,000; from the circulation, \$19,000,000. In general, this is the history of the exports from April 27 to the present time. The circulation has lost a little more than half the specie sent abroad, and the banks little more than a seventh."

Shafting-Grinder.

This machine is especially adapted for grinding a large variety of cylindrical work by the use of solid emery-wheels, either straight or tapering. It is constructed so as to swing heavy work. The emery-wheel carriage travels by means of a lead screw through the center of the bed, engaging with a split nut, to be opened or closed at will. When open the carriage is free to be run by hand. With a wheel each side of the roll equal pressure is brought, so as to prevent springing, but, if preferred, only one wheel is sent and a steady rest on the opposite side. An extra swivel-head is furnished to run on the carriage opposite the chuck, arranged to carry very small wheels for grinding the inside of work held in the chuck, either straight or tapering. The feed-work and slide of the machine are covered and fully protected from emery and dust. The bed is supported on bases forming closets for small parts and fix-

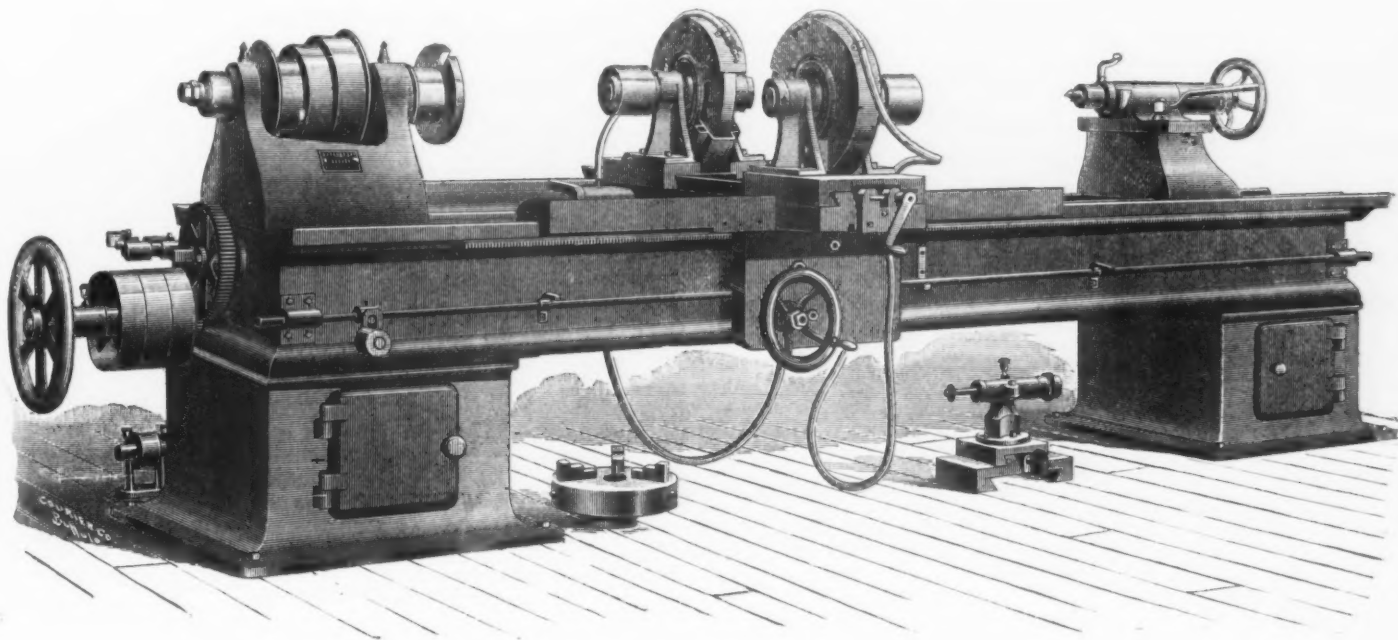
tures belonging to the machine. The bed of the machine is closed at the bottom, making it much more rigid and forming a reservoir for holding water to supply the pump. The pump furnishes an ample supply of water, which prevents the heating and expanding of the work, while the grinding can be done much faster than when ground dry and with a greater degree of accuracy. The bed of the machine is 12 feet long, 8 feet between centers and swings 22 inches over the carriage when an emery-wheel 20 inches in diameter is used, and swings 16 inches over the carriage with a wheel 14 inches in diameter. The length of the emery-wheel bearings is 4 inches, diameter of wheel-spindle 2 inches. The weight is 6200 pounds. The machine is back-geared for work that is about 6 inches in diameter. This grinder is made by the Springfield Glue and Emery Wheel Company, of Springfield, Mass.

Philadelphia's Tall Chimneys.

The chimney of the Schlichter Jute Cordage Company's factory, at Trenton and Erie avenues, according to the *Philadelphia Record*, holds first place, and the tall, slender, square column of brick is a most interesting structure. It was built in 1884 and stands 204 feet 6 inches high,

chimney and out of sight. A handkerchief thrown into one of the furnaces in which there is no fire appears in a second at the top of the chimney. This chimney cost about \$12,000, and a stack of the same pattern and measurements, except the height, which is 184 feet, furnishes draft for the furnaces of Daniel Allen & Son's dye works, at Cambria street and Frankford avenue.

Two of the most interesting chimneys in this region are at the car-wheel foundry of A. Whitney & Sons, Sixteenth and Calowhill streets. These stacks, which are often supposed to be of recent construction, were built in 1847 from designs by the late Asa and George Whitney. The pattern is peculiar and very graceful, and has since been copied by James Moore and William Sellers & Co., whose stacks are close by, and the Pennsylvania Railroad, who have two of these chimneys at the West Philadelphia shops. The Whitney chimneys are 125 feet high, 12 feet in diameter at the base, and the iron caps to



SHAFTING-GRINDER, BUILT BY THE SPRINGFIELD GLUE AND EMERY WHEEL COMPANY.

ures belonging to the machine. The bed of the machine is closed at the bottom, making it much more rigid and forming a reservoir for holding water to supply the pump. The pump furnishes an ample supply of water, which prevents the heating and expanding of the work, while the grinding can be done much faster than when ground dry and with a greater degree of accuracy. The bed of the machine is 12 feet long, 8 feet between centers and swings 22 inches over the carriage when an emery-wheel 20 inches in diameter is used, and swings 16 inches over the carriage with a wheel 14 inches in diameter. The length of the emery-wheel bearings is 4 inches, diameter of wheel-spindle 2 inches. The weight is 6200 pounds. The machine is back-geared for work that is about 6 inches in diameter. This grinder is made by the Springfield Glue and Emery Wheel Company, of Springfield, Mass.

The invasion of British capital witnessed in the acquisition by foreigners of various business interests in this country is referred to by the *St. Louis Globe-Democrat*, which says: "This peaceful British conquest brings large amounts of new capital into the country, and releases corresponding sums of American capital

13 feet square at the base and 11½ feet at the top. The chimney rests upon a bed of quicksand, and to secure a solid foundation a huge block of concrete was made 30 feet square and 5 feet thick. In this foundation 300 barrels of Portland cement were used and 400 loads of rubble-stone. With this base the stack stands as firm on the quicksand as if it were built upon a ledge. In the construction of the chimney itself 272,000 bricks were used, more than were necessary for the entire mill building. Within the chimney is a single circular flue, 6 feet in diameter and widening 6 inches at the top by an imperceptible taper. This chimney is of an English pattern, of which there are very few in this country, the Schlichter stack being the pioneer. The characteristic feature is the very slender and gently tapering shape, and the vibration of this chimney in windy weather has always been so great that when it was first completed many people who saw it prophesied that it would some day topple over. So carefully was it designed and constructed, however, that it has stood every gale without the slightest injury. While building the chimney the brick-layers worked from the interior, and an elevator ran in the flue to carry bricks and mortar to them. Light objects caught in the powerful draft are quickly whirled away up the

which the chimneys flare at the top are 14 feet in diameter and weigh 5 tons each. The stack that stands in the center of the works was built upon quicksand, and soon after being completed it sunk 20 inches and canted over to one side 20 inches. To straighten it was out of the question; so a novel engineering feat was undertaken. A heavy staging was built up around the chimney, and the cap on the top was supported just where it was by the timbers. Then the stack was taken down, brick by brick, while the 5-ton iron cap remained in mid-air. Starting again from the ground the chimney was rebuilt upon accurate lines, and when its former height had been reached the massive iron cap was moved over to the chimney in its correct position, where it now stands. Twenty years after the chimney was built this iron cap split open, and the crack widened to 6 inches. Superintendent L. A. Faught thought he could fix it without making a new cap; so a staging was built and two men were sent to the top to stretch the iron by continual hammering around its circumference. It took three weeks of steady pounding to bring the sides of the crack together, but it was finally closed tightly.

Mayor Fitler has a 125-foot chimney, 15 feet square at the base, at his big cordage factory in Bridesburg, and there is a square

stack 100 feet high at Thomas Dolan & Co.'s mills at Second and Oxford streets. The Keystone Watch Case Company, Nineteenth and Brown streets, have recently built a new iron chimney 125 feet high and 75 inches in diameter. There is a handsome chimney at the Highland Worsted Mills, Cooper's Creek, Camden, which is 180 feet high and 13 feet square at the base. The stack at Erben, Search & Co.'s yarn mill, at Tacony, is 175 feet high and 13 feet square at the base.

The Lucigen Lamp.

This lamp, which is well known in Great Britain, is being introduced in this country in places where the electric arc light is applicable, such as foundries, rolling-mills, large machine-shops and all out-door work. The flame produced is of great candle-power and is entirely free from that dazzling quality peculiar to the

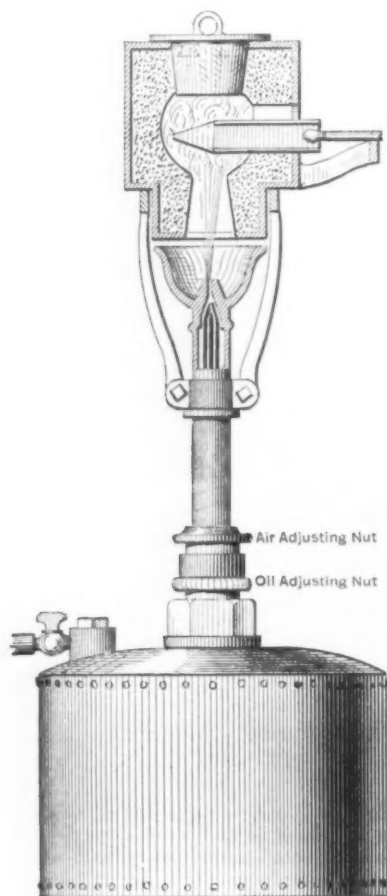


Fig. 1.—The Lucigen as a Heater.

are light. Lamps varying from 250 to 10,000 candle-power are made, and it is stated that 1000 candle-power can be produced with the consumption of $\frac{3}{8}$ gallon of creosote oil or 1 gallon of crude petroleum per hour. The Lucigen is operated by means of compressed air, to produce which air-compressors and receivers are provided when an air-pressure is not at hand. The air, under pressure, is admitted to the top of the oil-tank, from which the oil is forced upward to the burner, from which it issues in an atomized state and burns clearly and steadily. By means of an automatic control of the air and oil admission valves it is impossible for any oil to be forced from the burner without having first been transformed into a fine spray. The lamps are made portable and can with little trouble be moved from place to place, and they are also erected as a fixture when the position of the light can be determined permanently.

The accompanying engravings show this lamp so arranged that the great heat

produced can be utilized. In Fig. 1 the lamp is provided with a pot lined with fire-clay, and is adapted for heating soldering-irons, &c. Small crucibles and ladles of metal can also be heated by placing them in the opening in the top, which is shown closed by a plug in the cut. Fig. 2 represents a furnace adapted for heating metals, such as bar-iron, rivets, &c. The furnace consists of a rectangular iron box lined with fire-clay and having a door, A, in the side. The flame enters the side of the box, as shown, and from the inner chamber the products of combustion pass out through the chimney B. This can be converted into a muffle furnace by so arranging the muffle in the furnace that the flame will be free to circulate around it.

The Lucigen is manufactured by the Industrial Light Company, of 196 Temple Court, New York City.

The British Iron Trade.

We extract from a recent issue of London *Iron* some interesting statements relative to the present condition of the British iron trade. With reference to the exports

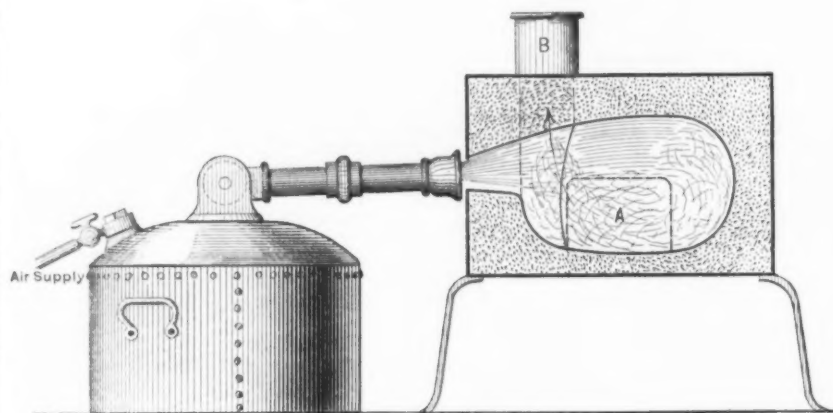


Fig. 2.—The Lucigen Applied to Heating a Furnace.

of iron and steel, it is said that the result of the shipments in June is even more disappointing than was that of the May exports, and the promise held out by the earlier months of the year that 1889 would show a considerable increase over 1888 in the foreign consumption of British iron and steel does not now appear so certain. It is, however, in respect of the six months' exports that the Board of Trade returns possess the greatest interest, and the evidence which they afford with regard to the export trade of the country is fairly satisfactory. During the six months ending June 30 Great Britain exported 1,990,901 tons this year, compared with 1,946,801 tons last year, an increase of 44,100 tons, or about 24 per cent. The value of the shipments at the same time improved from £13,125,483 to £13,834,478, or £708,995, equal to 5.4 per cent. The total exports for the half-year would have given a better result but for the decrease in the quantity taken by the United States. It will be seen from the annexed details of the shipments to this country that in spite of an increase of 39,077 tons in the exports of tin-plates, the whole shipments show a net loss of 28,234 tons, which is mainly due to the diminished quantities of pig-iron, railway material and steel blooms, billets, &c., sent thither, the falling off in the second mentioned being especially prominent. The aggregate of the exports to the United States for the six months having been 299,442 tons, it will be seen that one item alone—viz., tin-plates—is to be credited with almost 60 per cent. of the entire quantity. It is also worthy of re-

mark that notwithstanding the restricted state of British business with America just now, this country still takes more iron and steel from Great Britain than any other individual country. The following is a comparative statement of the exports of iron and steel to the United States during the six months ending June 30, 1888 and 1889:

		Tons.	Increase.	Decrease.
		Tons.	Tons.	Tons.
Pig-iron.....	1888	80,218	....	25,792
	1889	54,426		
Bars, angles, &c.	1888	2,969	....	351
	1889	2,618		
Railway material.....	1888	37,131	....	26,238
	1889	10,893		
Hoops, sheets, &c.	1888	15,535	....	2,017
	1889	13,518		
Cast and wro't manufactures	1888	2,285	....	642
	1889	1,643		
Steel (unwro't).	1888	36,290	....	14,526
	1889	21,773		
Wire.....	1888	2,612	1,272	....
	1889	1,340		
Tin-plates.....	1889	179,501	39,077	....
	1888	140,424		
Old iron.....	1888	12,458	983	....
	1889	11,475		

Net decrease 28,234

With regard to the condition of the home trade it is stated that the iron market continues firm and with a rising tendency, although the actual business done is not very extensive. There is an evident de-

sire on the part of consumers to place their orders, but makers are unwilling to pledge themselves for any length of time, owing to the uncertainty as to prices of raw materials and wages. Pig-iron has again become dearer to the extent of 6d a ton in the north of England. Warrants have been very steady at Glasgow, and Scotch makers have put up their prices from 6d to 1/4 a ton. Pig-iron has further stiffened in Lancashire and the midland districts, while hematites in the northwest and elsewhere are very strong. The finished iron trade is more active in the south than in the north, but everywhere the tendency is upward. Steel is in very brisk demand, late rates being firmly adhered to. Ship-building is unchanged. Engineers continue extremely busy.

With the revival in trade the customary trouble of labor dissensions has come upon iron masters. In some cases it has taken the form of sudden abstention from work. In the north of England the question of the abolition of Sunday labor has been made the subject of a temporary outcry, despite the fact that the high terms of payment for such work present sufficient warranty that the employers will not resort to it except when it is absolutely necessary. In Staffordshire the same matter has been under consideration, and a resolution has been adopted to the effect that the iron workers considered "Monday work, with its consequent Sunday work, opposed to the best interests of both employers and workmen," and announcing that the iron workers were "in favor of its general discontinuance."

Recent Customs Decisions.

From a synopsis of recent decisions in customs cases rendered by the Treasury Department we take the following as of interest to our readers:

A hollow iron cylinder or shield, to be placed on the American side and thence driven under St. Clair River by hydraulic pressure as a portion of a projected international tunnel between this country and Canada, is held not to be free of duty. (Letter to Hon. James McMillan, United States Senate, July 12, 1889.)

So-called wire muzzles for bottles, intended for holding the cork in place, are held not to be the "wire-cloths" or "wire-nettings" provided for in Schedule C (T. I., 182), but to be dutiable as manufactures of iron under T. I., 216, these articles differing materially from the merchandise the subject of Department's de-

and that it was in fact rolled direct from the billet in the same way as any other flat strips or hoops. The appraiser in his report states that while the steel has the appearance by its rounded edges of having been rolled flat from wire-rods, it may have been produced by being rolled direct from billets in grooved rollers. He renews, however, his statement that the steel is not the steel strips of commerce, and this the Secretary considers the vital question.

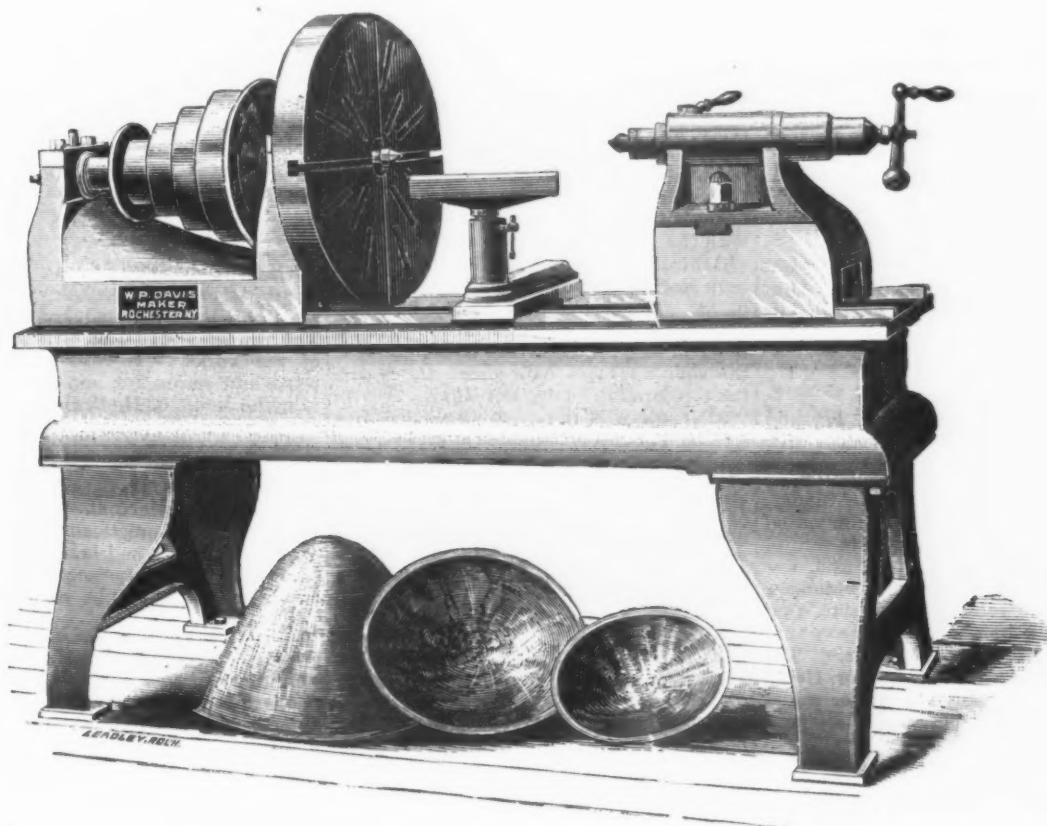
Heavy Speed-Lathe.

The accompanying engraving represents a special speed-lathe which has just been brought out by W. P. Davis, of Rochester, N. Y., and whose works are at North Bloomfield, N. Y. The lathe is designed for spinning head-lights for locomotives and work of a similar nature, where a

very great. No one has been more instrumental in effecting this improvement in foundry practice than the author of this pamphlet, and he is entitled to the thanks of every melter of pig-iron for his unselfish efforts to increase the general knowledge on so important a subject."

The Experimental Tin-Plate Plant.

—In our issue of the 18th ult. we made mention of the fact that a small experimental tin-plate plant is to be erected on the grounds of the Pittsburgh Exposition Society for the purpose of demonstrating that tin-plate can be manufactured in this country of as good quality as in foreign countries. A meeting of a number of sheet-iron and sheet-steel manufacturers of Pittsburgh was held in that city on Tuesday, the 23d ult., for the purpose of taking some action in the project. B. F. Jennings, of Jennings, Beale & Co.,



HEAVY SPEED-LATHE, BUILT BY W. P. DAVIS.

cision of January 17, 1888 (Synopsis 8633). (Letter to Collector of Customs at New York, July 16, 1889.)

Where goods are imported by one party and sold to another before liquidation of the entry, and protest and appeal filed within the time prescribed by Section 2931 of the Revised Statutes by the party to whom the goods were sold before liquidation, it is held that inasmuch as the denial of the right to protest in such case would debar both the original importer and the subsequent purchaser from all relief, a protest which states by whom the entry was made may be accepted, although signed by the purchaser after entry. (Letter to Collector of Customs at New York, July 16, 1889.)

The acting Secretary of the Treasury has sustained the action of the collector at New York in assessing duties at the rate of 45 per cent. on certain steel in strips, or hoop-steel, imported by R. H. Wolff & Co., of New York. The importers claimed that the statement of the appraiser that the steel was made from wire or wire-rods rolled flat was incorrect,

heavy stiff tool is required. The machine as shown weighs 2500 pounds; swings 26 inches over the ways; has a 6-foot bed; the front bearings are 2½ inches in diameter and 5 inches long; and the cone has four speeds for a 3½-inch belt. The lathe is well proportioned for the work required of it and is substantially built.

Charles Himrod & Co., pig-iron merchants, 517 Rookery Building, Chicago, have issued an edition of W. J. Keep's paper on "The Influence of Silicon in Cast-Iron," which was read at the last meeting of the American Institute of Mining Engineers. In a preface to the pamphlet Messrs. Himrod & Co. say that it is a source of gratification to them to be instrumental in offering to the trade this contribution to the literature of the silicon question. "A great change has taken place in the foundry practice within a very few years, and this change has been in the direction of cheaper mixtures. It is impossible to estimate the saving that has already been effected to the foundry men of this country, but it has certainly been

Limited, presided, and W. C. Cronmeyer, of the United States Iron and Tin Plate Company, Limited, acted as secretary. It was decided that the American Tinned Plate Association should take charge of the matter and push it to completion. B. F. Jennings was appointed treasurer, to receive subscriptions from manufacturers for the erection of the plant. Quite a handsome sum of money has already been subscribed, and it is thought that no difficulty will be experienced in securing the required amount.

It is a chronic complaint here in New York that the newly-built steamships have outgrown the docks. The latest additions are some 600 feet in length, projecting so far into the stream that they are exposed to injury from any passing vessel. Formerly, when clipper ships were in vogue, the difficulty was inshore, where the elongated jib-boom was constantly liable to punch holes in the nearest warehouses. The water front needs to be entirely remodeled, to conform to the requirements of steam navigation.

THE WEEK.

A committee representing trades-unions in Boston visited New York City to inquire into the causes of the existing depression in the manufacture of clothing, trade being dull and prices low. They report that in many of the tenements in this city the workshops are generally overcrowded and that from 14 to 18 hours a day is not unusual, with wages averaging from \$2 to \$8 a week, the greater number earning from \$2 to \$3. All day Sunday the whirr of the sewing-machine can be heard on the east side of the town.

The case of the Lake Superior Ship Canal Railway and Iron Company *vs.* Walter Cunningham has been disposed of in the United States Court at Marquette, Mich. The verdict sustained the title of the company to lands which Cunningham and others sought to homestead or preempt. It was made a test case among 34 brought by the same plaintiff. An appeal has been taken to the Supreme Court of the United States.

The Portuguese Government has contracted with an English engineer named Sawyer for the completion of the Delagoa railway.

Six of the principal cigar manufactories in Havana have been purchased by English capitalists.

Money for a direct cable between Canada and Great Britain has been secured in England to the extent of \$350,000. It is estimated to cost \$1,000,000.

The bursting of a centrifugal cream-separator near Kimberton, Chester County, Pa., July 21, caused the instant death of two persons who were struck by fragments of cast-iron. The cylinder containing the cream was making 2500 revolutions a minute. Testimony taken at the inquest showed that pressure on the iron varied from 2 to 4 tons. The factor of safety, which should have been as 6, was only as 1.6. The force with which the fragments were projected was such that particles of the flesh of one of the victims seemed to be imbedded in the metal. The jury severely censured the inventor, Henry F. Beimling, "for presenting for sale a separator which is incapable and positively not safe."

The cotton-growing States are solidly arrayed against the Jute Trust, apparently determined to wrap the entire present crop in cotton bagging. The threatened war will be made even more interesting by the fact that the cotton crop promises the heaviest in ten or fifteen years.

A heavy failure in the dry-goods trade took place last Thursday, Lewis Brothers & Co., of New York and Philadelphia, making an assignment without preferences. Cornelius N. Bliss, of Bliss, Fabian & Co., is the assignee, and the members of the firm executing the assignment are Henry and James W. Lewis, of Philadelphia; Walter H. Lewis and John L. Boardman, of New York; George W. Wharton, of Media, Pa.; George B. Duren, of Newark, N. J., and Grinnell Willis, of Morristown, N. J. The amount of the liabilities is estimated at over \$4,000,000. At Bradstreet's it was stated that Lewis Bros. & Co.'s credit had been considered good. Mr. Bliss said as far as he knew the firm's statements in the past 60 days showed a surplus of over \$1,000,000, but that was not available now. A large part of it was locked up in accounts which they could not collect immediately. He thought the assets would make a very fair showing, and he expected that a statement of the firm's actual condition would be ready to be presented to a meeting of creditors which would be held in about

ten days. The liabilities were held in many places, principally by banks and trust companies. A gentleman familiar with their affairs said that nearly all the banks in New England held the firm's paper, especially in the cities where they had mill accounts. Philadelphia banks are the heaviest holders of their paper. The firm were very much extended and overloaded. They suffered a severe loss in the death of Henry Lewis, the founder of the house, who was a very capable business man and one who had the implicit confidence of everybody, especially in Philadelphia.

The contract with the Union Iron Works, of San Francisco, for the construction of a coast-defense vessel has been signed by Secretary Tracy. The contract price is \$700,000.

The agent of a British syndicate—Douglas G. MacRae—reports that he has purchased 78 grain elevators in the Van Deusen system in the Northwest.

The architectural plans for the new New York criminal court building have been approved by the Sinking Fund Commissioners and contemplate the erection of a fire-proof building in the modern Renaissance, six stories high, with walls to the first floor of granite and above to the top red brick, with terra-cotta trimmings of Belleville or Long Meadow fire-stone. Office-rooms will make up the first floor, with the seven court-rooms on the second and third floors, occupying the full height of both stories, making the ceiling 30 feet in height. The entire height of the building will be 115 feet. A large arcade will be built in the center of the building, with the stair-ways and halls about the walls, the top forming a huge sky-light. A covered arcade will run from Centre to Elm streets. The cost is estimated at \$1,400,000.

Revised estimates by the Board of Inquiry at Johnstown, Pa., put the number of lives lost in the devastated district at 6000 or upward.

The Reading Railroad Company desire to sell the franchise of the Schuylkill Navigation Company to Philadelphia, claiming that they have large impounding reservoirs in the mountain region valuable as a water-supply.

Merchandise to the value of \$4,000,000, comprising 23 cargoes, has just been loaded at Baltimore on steamers which first arrived at Philadelphia from London and Swansea to discharge. The railroads are supposed to concede this division of trade by discriminating rates in east-bound freight.

A widow of one of the victims of the Johnstown flood sues the South Fork Club for \$50,000 damages.

Acting Secretary Batchelor has written a letter to the Collector of Customs at Cape Vincent, N. Y., in regard to the enforcement of the Alien Contract Labor law, in which he says: "The law does not prohibit aliens or foreigners from voluntarily coming into this country seeking for employment and contracting for work after their arrival here. One who was an American citizen, but has become a naturalized citizen of another country, is an alien in the sense of the law. As to the case of an American citizen residing in Canada, but without having been naturalized there, and coming into this country under a previous contract to labor, the question as to his liability under the law will be decided when a case is presented with its facts and circumstances. In view of the many complicated situations and close business relations along the Canadian line, which apparently were not contemplated or provided for by the law, it is preferred that they be submitted to the consideration of Congress before a

needlessly rigorous enforcement of the law, possibly causing unnecessary hardship and financial injury to American citizens."

Ten thousand five hundred coal miners in Northern Illinois have been unemployed and destitute since May 1, when they refused to accept a reduction in wages averaging 15 cents per ton. Public sympathy has been slowly aroused in behalf of the starving miners and their families, and relief measures have been agitated by the Chicago press and are now assuming a practical shape, though much suffering still exists. The district covered by the idle mines is about due south from Chicago. Braidwood, which is the center of the region, is 57 miles distant on the main line of the Chicago and Alton Railroad. The Chicago, Wilmington and Vermilion coal companies are the most extensive operators in this district. They own the mines at Braidwood, which are the largest in the group. The Otter Creek, Coal Run and Diamond coal companies operate the mines in other towns. The St. Paul Railroad Company own and run the mine at Braceville for their own use. Outside of the Braceville mines the stockholders of the Northern Illinois mines are wealthy residents of Eastern cities, principally Boston and New York. The condition of the miners is represented to be deplorable. The average earnings of the strikers, it is said, was 71 cents a day.

The village of Duquesne, near Pittsburgh, where the Allegheny Steel Works are located, is infested by incendiaries. The residence of Frank Gray, chief clerk of the works, was covered with cotton-waste and set on fire, and a church edifice near the house of H. P. Smith, one of the directors of the Steel Company, was destroyed.

The directors of the North American Salt Company issued an official announcement declaring, practically, that the effort to float the shares and bonds of the company have proved unsuccessful, and that the subscriptions will be returned.

Detroit boasts that the building now in progress in that city for the International exhibition to open September 17 is one of the largest ever constructed on this continent, being 580 feet long by 350 wide and 100 feet high, with four towers, the whole covering 14 acres. A fine exhibit is promised from Puget Sound and the Pacific Coast, as well as from the line of the Canadian Pacific Railroad.

The discovery has been made that the most arid positions of Australia can be irrigated by artesian wells penetrating copious reservoirs of water found at a depth of 1000 or 2000 feet.

A Scotch company which some five years ago bought about 50,000 acres of Florida land has come to grief, and the Edinburgh court, in providing for winding up its affairs, grants judgment against various American stockholders of \$15 per share. One of the suits commenced in Philadelphia is against the secretary of Hamilton Disston's Florida Land and Improvement Company, who is represented as holding 200 shares in his own right, and as being trustee for 5000 shares in addition. The secretary, Mr. Salinger, says he was individually presented with 200 shares, but does not know whom he is trustee for, and he "never put a cent in or got a cent out."

The New York Chamber of Commerce, it is said, will soon commence a crusade against the Chinese Exclusion law, which it pronounces detrimental to trade, and will invoke other commercial bodies to unite in urging upon Congress the necessity for its repeal.

MANUFACTURING.

Iron and Steel.

Workmen have begun tearing down No. 3 Pioneer Furnace of the Pottsville Iron and Steel Company, at Pottsville, Pa., with the intention of at once rebuilding it and doubling its capacity. No. 2 furnace had to be blown out in consequence and No. 1 is the only one of the company's furnaces now at work. The building operations will last three months.

The Beaver Falls (Pa.) *Evening Journal* states that the wire-nail works of that city have shut down, and according to the superintendent will not start up again before January 1. The New Castle (Pa.) *Courant* says that the New Castle Wire Nail Works Company have arranged to take the output of the Beaver Falls rod-mill until their own rod-mill, now in course of construction, is completed.

The Chicago and Calumet Rolling Mill Company, with headquarters at Chicago, were incorporated on the 26th ult., with a capital stock of \$1,000,000. The incorporators are Jean L. Pfau, J. Louis Pfau and George Campbell. It is reported that the company will erect a rolling-mill at Calumet.

Sharon Furnace, formerly operated under lease by Spearman, Collard & Co., at Sharon, Pa., has been leased from the owners by Messrs. Charles and Norman Hall, and will be put in blast during the present month.

Girard Furnace, at Girard, Ohio, is idle at present, undergoing extensive repairs, which when completed will materially increase the capacity of the furnace. It is owned by A. M. Byers, of Pittsburgh.

The Bellaire Nail Works, at Bellaire, Ohio, signed the Amalgamated scale last week, and their entire plant is now in operation, giving employment to about 700 men.

The Reading (Pa.) *Times* of the 23d inst. says: "Robert H. Coleman, of Cornwall, went to Emaus on Saturday, where he examined the Emaus Furnace, with a view of leasing it. He met by appointment capitalists from New York. Alfred Broden, of this city, will probably take charge of the furnace."

The Bethlehem Iron Company, of Bethlehem, Pa., are at present receiving enormous quantities of Cuban iron ore. The North Penn Railroad in their haste to ship the ore loaded it in coal-cars and the iron company refused to accept it in that shape, and one track of the railroad is now blocked with the cars as far as Centre Valley. The railroad company are employing 125 Italians to unload the ore at Bingen.

Raney & Berger, of New Castle, Pa., expect to put their new furnace in blast about the 15th inst., at which time their old stack will be blown out.

Falling Spring Furnace (charcoal), at Chambersburg, Pa., was put in operation by C. Burkhart & Co. on the 22d ult. Thus far the furnace is doing very well, turning out a better quality of iron than ever before in its history.

P. L. Kimberly & Co., Limited, of Sharon, Pa., are making some extensive improvements at their Etna Furnace, at New Castle, Pa. Three large Whitwell stoves are being erected, to take the place of the present hot-blast system. A new battery of three steam-boilers is also about completed, and other improvements are being made that will cost about \$50,000 altogether. The new stoves will be erected south of the stacks, giving additional yard room where the hot-blasts now stand. The plant, when thus improved, will be

one of the best equipped in the United States. J. P. Witherow, engineer and contractor, of Pittsburgh, has charge of the work.

Robert Walker, receiver of the Himrod Furnace Company, of Youngstown, Ohio, has leased both stacks to S. Frank Eagle, of Leetonia, Ohio, who will put them in operation at an early date. No. 1 stack is 70 x 15 and No. 2 is 70 x 16, and they have an aggregate annual capacity of 65,000 net tons.

The Columbia Iron and Steel Company, of Uniontown, Pa., signed the Amalgamated scale last week, and the entire plant, which has been idle for some weeks undergoing repairs, resumed operations on Monday, the 29th ult. The firm have some large orders on hand and have been advertising for men, with a view of running double-turn and increasing the force to about 700 men.

A. M. Byers & Co., wrought-iron-pipe manufacturers, of Pittsburgh, recently secured a contract for 15 miles of pipe for a gas company at Bluffton, Ind. The pipe is to be 16 inches in diameter.

Shoenberger & Co., proprietors of the Juniata Iron and Steel Works, at Pittsburgh, are the only iron and steel manufacturers in that city that have not signed the Amalgamated scale. The reason for this is that the plant of the firm is still undergoing extensive repairs and will not be ready to resume operations before the 15th inst. The firm will doubtless ask some concessions in the scale to put them on an equal footing with the scale at the Homestead Steel Works of Carnegie, Phipps & Co., Limited. There is every reason to believe that there will be no difficulty in settling all differences which may arise between the firm and the employees.

The Reliance Steel Casting Company is the name of a new firm recently organized at Pittsburgh to engage in the manufacture of steel castings. The firm are at present erecting a building 50 x 135 feet in that city. Charles Bailey, who was for some years assistant superintendent of the Pittsburgh Steel Casting Company, is chairman of the new company. They will start with a 30-pot crucible furnace, and their aim will be to manufacture small castings promptly. The works will be put in operation during the latter part of this month.

The Keystone Bridge Company, of Pittsburgh, have been awarded the contract for building the new bridge across the Monongahela River at Dravosburg, Pa.

The Wrought Iron Bridge Company, of Canton, Ohio, have been awarded the contract for the construction of three iron-span and pile bridges at Caledonia, Texas; also an iron bridge at Wheeling, W. Va.

The Secretary of the Navy has awarded to the Linden Steel Company, Limited, of Pittsburgh, the contract for furnishing the armor-plates for the new battle-ship Maine. The contract calls for 428 tons of steel plates amounting to \$34,753. Work on the order will be commenced at once, as the Maine is under process of construction and the plates will soon be needed. The above-named firm signed the Amalgamated scale last week.

The Bellaire Nail Works, of Bellaire, Ohio, the Riverside Iron Works, of Wheeling, W. Va., and the Junction Iron Company, Mingo Junction, Ohio, each declared semi-annual dividends of 5 percent. during last month.

George F. Baer has concluded to accept the presidency of the Reading Iron Company, which had been tendered him immediately after the sale of the Reading

Iron Works. He has associated with him as directors of the new concern President Austin Corbin and Vice-President A. A. McLeod, of the Reading Railroad Company, George E. Clymer and Simon Seyfert, of Reading. The organization of the various departments of the extensive plant has also been made by Mr. Baer and his associates, and they have announced the following appointments: General manager and treasurer, Frank C. Smink; superintendent of the tube works, Edward W. Wolfe; superintendent of the blast-furnaces, Albert Broden; superintendent of the rolling-mill, Simon Seyfert; superintendent of Scott foundry, John G. West. All of the gentlemen have entered upon their duties, and they have been ordered to get their respective departments ready for resumption of work on September 2, about a month later than originally contemplated. This delay is occasioned on account of the forthcoming assignee's sale of personal property.

All departments of the Homestead Steel Works of Carnegie, Phipps & Co., Limited, at Homestead, Pa., are now in full operation, giving employment to over 3000 men.

One of the stacks of the Allentown Iron Company, at Allentown, Pa., made 637 tons of pig-iron week before last.

Cornelia Furnace, at Jackson, Ohio, has been torn down. It was a charcoal stack, 10½ x 37 feet, built in 1853.

The plate, bar and skelp mills and steel and pipe works at the Riverside Iron Works, Wheeling, W. Va., are all running full and turning out the usual output; also the old factory and the furnace at Steubenville. Workmen are tearing down the blast-furnace at Benwood preparatory to the erection of a new one; a large force is engaged in the work. The pipe-mill is well crowded with orders and its full capacity is thoroughly tested. On one day recently the company booked orders for 18 miles of line-pipe and 12 miles of steam-pipe.

It is understood that Cleveland (Ohio) capitalists have about completed arrangements to establish an iron tubing factory at Ottawa, Ont. The syndicate say they possess a new welding process. Ottawa was selected as the scene of operations on account of the magnificent water-power afforded by Chaudiere Falls.

Judge Bruce, in the United States Court at Montgomery, Ala., on July 24, rendered a decision in the case of Hollins, Sons & Co. vs. the Brierfield Coal and Iron Company, in which there was a very large amount of money involved. A bill was filed to set aside a deed of trust to secure an issue of bonds on the ground of fraud in the issue of bonds. The court held that the allegations of fraud in the issue of the bonds were not sustained by the evidence; the bonds, if held, were made and issued in good faith and for a sufficient consideration.

Machinery.

By reference to the advertisement in this issue under the head of special notices it will be observed that the Ludlow-Saylor Wire Company, of St. Louis, offer for sale an Otto gas-engine of ten horse-power. They state that this engine is in good running order and it will be sold at a reasonable price.

Thomas Carlin's Sons, founders and machinists, of Allegheny City, Pa., have purchased the two large engines which formerly constituted the motive power for the cable cars on the Brooklyn Bridge. Six cars were required for their transportation.

The Collins-Gibbons Mfg. Company, of St. Louis, manufacturers of wire straightening and cutting machinery, report a

large increase in the demand for their machines. Among the orders lately booked are noted the following: St. Louis Refrigerator and Wooden Gutter Company, St. Louis; John McLane, Milford, N. H.; John W. Assall, New York; Kansas City Hay Press Company, Kansas City, and the Low & Rewell Mfg. Company, Wilton, N. H.

Wm. B. Pollock & Co., proprietors of the Mahoning Boiler Works, at Youngstown, Ohio, are enjoying a brisk demand for boilers, tanks, plate-iron work, &c. They are at present erecting two additional punching-machines and are putting in a 10-ton crane. This firm have been established over 25 years, and make a specialty of blast-furnace and rolling-mill work and boilers of the larger sizes.

The Springfield Machine Tool Company, of Springfield, Ohio, have recently purchased the plant of the Hanika Iron Fence Company, of that city, and will soon put it in operation. The first-named firm are also contemplating the erection of a new foundry at an early date.

The Reliance Gauge Company, of Cleveland, Ohio, recently received an order from the Porter Mfg. Company, of Syracuse, for six No. 2 Reliance Safety Water-Columns for boilers, which they are furnishing to a Cuban customer, and an order from Robert Boker & Co., of Mexico, for a like number.

The Aetna Machine Company, of Warren, Ohio, recently received an order for one of their engines from W. I. Slipper, of Mulberry, Ind.; also an engine for the Standard Iron Company, of Bridgeport, Ohio, and an order for six pipe-threading machines for the Paige Tube Company, of Warren, Ohio.

The Wellsburg Foundry Company have been incorporated at Wellsburg, W. Va., for the purpose of carrying on a general foundry business, machine-shops, &c.

The Ranken & Fritsch Foundry Company, of St. Louis, are completing four large plate-glass tables, 20 feet long, 13½ feet wide, and weighing 48 tons apiece, to go to Indiana and Pennsylvania. These are the largest tables of the kind ever constructed in America. The next largest came from England, and were 18 x 12 feet.

The Chicago office of Westinghouse, Church, Kerr & Co. have made a remarkable showing in the line of economy at the Aurora Electric Light and Power Company, Aurora, Ill. The original plant of this company consisted of a horizontal return tubular boiler with a good automatic engine, heater, &c., burning the best quality of lump coal, which was found to be necessary under the conditions, at an average of from \$4 to \$5 per night. This plant was replaced by a Hazelton boiler fired by two Roney mechanical stokers, and a Westinghouse compound condensing engine. The company immediately went to buying the cheapest quality of slack coal, with an enormous reduction in the quantity burned. The net result, running exactly the same number of lights and for the same time, was a reduction from \$4.50 per night to 90 cents per night.

Sulzer & Vogt, proprietors of the Louisville Machine and Elevator Works, at Louisville, Ky., now occupy their new works, situated on Main street, between Lloyd and Preston streets. These works have a frontage of 165 feet, extending to Washington street. The main building is 50 x 204 feet, three stories high, with foundry building and steam-forge building annexed. The works have been thoroughly equipped with new and improved machinery and tools for turning out work in a thorough manner, the products comprising hydraulic elevators

for manufacturing plants, &c., and hand-power elevators of various styles for hotels, stores, &c. The firm have been engaged in building elevators for the last ten years.

The Bignall & Keeler Mfg. Company, 1100 North Second street, St. Louis, Mo., send us a copy of their catalogue illustrative and descriptive of pipe and bolt machines, shapers, lathes, emery-grinders, surfacing-machines, drive-well points, screw-punches and iron-working machinery. In the present issue of the catalogue an introductory note directs attention to some of their departures and improvements, among which are mentioned their New Duplex Mill Machine, Screw-Geared Mill Machine and No. 16, which cuts and threads pipe up to 16 inches; also their New Nipple Machine and Automatic Radiator-Tube Threader. The machines of new design as well as of standard patterns, which are so well known, are illustrated and described in the pamphlet before us. In addition to the special trade information there are other useful items in the shape of tables, directions, &c., while the latter part of the book contains sections on belting and gear-cutting, special attention being directed to the closing table, which gives the price-list for cutting gears from the smallest to the largest sizes.

In our issue of July 4 last we presented an illustrated description of the Bolt-Cutter, Nut-Tapper, Pipe-Threader and Cutting-off Machine built by the Wiley & Russell Mfg. Company, of Greenfield, Mass. In our article we stated that the machine weighed 700 pounds. This should have been 1700 pounds, a most essential difference. One of these machines is on exhibition at the Paris Exposition with Messrs. Selig Sonnenthal & Co. in the English department.

J. B. Deyer, of Birmingham, Ala., desires to communicate with manufacturers of machinery for making wooden butter-trays.

The Ball Engine Company, of Erie, Pa., in addition to their large trade in furnishing electric-light engines, have lately received orders from the following cities for engines for operating electric street railroads: Austin, Texas; Detroit, Mich.; Washington, D. C.; Cleveland, Ohio; Louisville, Ky.; Cincinnati, Ohio (two companies); Akron, Ohio; Erie, Pa.; Melbourne, Australia (two companies); Binghamton, N. Y.; Lynn, Mass.; Baltimore, Md.; Buffalo, N. Y.; New Birmingham, Texas; Windsor, Ont.; Atlantic City, N. J.; Portland, Ore. (two companies); Bay Ridge, Md.

We have received from Coit, Barton & Cowles, of San Francisco, Cal., an illustrated circular describing the Elliott Purifier, for the prevention and removal of scale in steam-boilers. This device is warranted to keep boilers from scaling, will cause all old scale to come off within a short time from time of commencing to use the purifier, will in all cases prevent foaming and will prevent explosions while there is any water in the boiler.

Hardware.

The H. C. Tack Company have recently been organized at Cleveland, Ohio, by Stephen H. Benedict, Charles C. Paine and Albert E. Convers. The cash capital, which is subscribed by the gentlemen named, aggregates \$10,340, and the company are formed for the purpose of manufacturing and selling tacks and nails in Cleveland for a term of five years from July 17, 1889. Mr. Benedict is the chairman of the new company and Mr. Paine its secretary and treasurer.

The Central City Bolt Company is the name of a new corporation which has been organized in Syracuse, N. Y., for the purpose of carrying on the business of manufacturing carriage-bolts, the Barry

Parlor-Door Hanger and other hardware specialties. They have purchased the plant of the old Syracuse Bolt Company and have largely increased their manufacturing facilities. A specialty with them is the Barry Parlor-Door Hanger, which is referred to as having met with the best of success wherever introduced. They will improve the style and finish of this hanger. The officers of the corporation are Dwight F. Hayden, president; Jacob W. Walter, secretary and treasurer, who, with Fred C. Eddy, E. B. Judson, Jr., and Geo. L. Smith, constitute the board of directors.

The new steel screw company recently organized at Cleveland, Ohio., have elected the following officers: President, A. B. Foster; vice-president, T. M. Irvine; treasurer, David Auld; secretary, W. B. Alexander; superintendent, D. Elliott.

The Davenport (Iowa) Cutlery Company have lately started up their factory and are more than pleased with the outlook. For the present they will limit their output to scissors, shears, &c., possibly taking up table and pocket cutlery in the future. They are equipped with the latest machinery and tools.

E. C. Atkins & Co., manufacturers of saws and tools at Indianapolis, Ind., inform us that the reports recently published that they have removed their headquarters to Chattanooga, Tenn., are erroneous. The firm say that they are a fixture at Indianapolis and have no reason for changing their place of manufacture, as they consider that locality the best in the West, if not in the whole country, for their business. They have established a branch house at Chattanooga, where they will conduct a repair shop and carry a full line of their goods. They bought out C. P. Turney's saw-shop at that place, retaining Mr. Turney's services, and expect to do a good trade there. They will also deal in mill supplies and belting. This will make their third branch office. The first branch was established at Memphis, Tenn., and has proved very successful, while the second branch at Minneapolis, Minn., is getting in good shape and doing nicely. They state that their silver-steel Diamond and special steel Dexter saws, and cut segment ground saws are having a large run in the South and West.

Miscellaneous.

The Blackstone Coal and Coke Company were chartered in Pittsburgh last week. The capital stock is \$6000, divided into 120 shares, at \$50 per share. The directors are: James G. Barbour, A. E. McKee, A. B. Stevenson and James McLaren.

The Keystone Bridge Company, of Pittsburgh, have the contract for the new Union Depot, at St. Paul, which will cost \$100,000.

The American Water Works and Guarantee Company, of McKeesport, whose headquarters are at Pittsburgh, Pa., have purchased the water-works plant located at Little Rock, Ark., for \$500,000. The company also purchased the plant at Jamestown, N. Y., for \$400,000, and now own and operate \$12,000,000 worth of water-works plants in the United States. They have a capital of \$5,000,000 paid up. Their stockholders are Pittsburgh, New York, Chicago and McKeesport capitalists.

A contract for the construction of a monster ocean tug for the Red Star Tow-boat Company has been awarded to Neafie & Levy, of Philadelphia, who say that she will be the largest and most powerful tug flying the American flag. The most novel feature of the craft will be her great coal capacity of 250 tons, sufficient for a voyage

to Europe. The hull will be of iron throughout, and she will have iron deck-houses to withstand the heavy seas. She will be 140 feet long, 26 feet beam and 11½ feet depth of hold. The motive power will consist of triple-expansion engines of 750 horse-power and steel boilers able to withstand 160 pounds steam-pressure. The tug will be furnished with electric lights, steam steering-gear and a powerful search light.

The Warren Foundry Company, of Warren, R. I., made their first heat on the 16th ult. The company's works are advantageously situated near the depot and afford excellent facilities for the handling of raw materials and manufactured goods. S. H. Peirce, formerly of the Co-operative Foundry Company, of Somerset, Mass., was the prime mover in the organization and is the manager of the enterprise. He has had a long experience in all departments of stove manufacture and also as selling agent. The company organized on the 18th ult. by the election of the following officers: Directors: S. H. Peirce, John Waterman, Philip Buffington, Wm. L. Collamore, Wm. H. Crawley, Wm. B. Nichols, H. C. Wilbur; president, John Waterman; agent, S. H. Peirce; treasurer and clerk, H. C. Wilbur; auditors, Philip Buffington, Wm. L. Collamore. Patterns of two sizes of a first-class range are ready for molding, and three sizes of parlor-stove patterns and another size of range are nearly finished.

The F. G. Faulkner Company, dealers in iron pipes and fittings at No. 41 Dey street, New York, have notified their creditors that they will wind up business. Frank G. Faulkner, the president, has been deposed by the trustees, who were dissatisfied with his management, and Morris E. Thayer has been made treasurer, with a view of winding up the business. Mr. Faulkner started the company in May, 1885, with a capital stock of \$15,000, and for the first three years of business, it is said, paid annual dividends of 10 per cent, and in June, 1888, it was claimed the surplus was about \$10,000. The creditors are to be paid in full, the stockholders making good any deficiency. The amount of the company's liabilities is not known, but reported in the trade to be about \$50,000.

The South Bend (Ind.) Spark Arrester Company have issued a circular stating that the Wiser Spark Arrester in no way interferes with the draft, and is so constructed that all sparks are carried by a counter current through a pipe into a pail filled with water. Inserted in the stack outlet is an inverted cone, made of steel wire-cloth, which permits the steam and gases to escape, but which effectually bars the passage for all sparks. It can be applied to any steam-engine that exhausts in the smoke-stack.

W. S. Collins, who opened an office at 171 Broadway, New York, a few months ago as licensee for the Aerated Fuel Company's system, reports his business as rapidly increasing. Among recent orders which he has taken for placing the system in shops are those from Fayette R. Plumb, edge tools, Frankford, Pa.; G. and H. Barnett, files, Philadelphia; Benjamin Atha & Co., steel works, Newark, N. J.; Heller & Bros., files, Newark, N. J.; The Enterprise Mfg. Company, Philadelphia, and the E. P. Gleason Glass Company, Brooklyn, N. Y.

The Eagle Iron Works, of St. Louis, Albrecht & Schellhorn, proprietors, received an order for 600 reclining arm-chairs for a South American railroad, through a New York firm.

The laying of the foundations of the Davis Sewing-Machine Works, Dayton, Ohio, has been begun, the corner-stone

having been laid by Governor Foraker with appropriate ceremonies July 20. A large concourse of representative citizens and business men was present, and addresses were made by A. A. Winters, president of the Board of Trade, Governor Foraker and General J. Warren Keifer. Philip E. Gilbert is the contractor for the erection of the work.

The International Mfg. Association, of this city, has been incorporated, with E. C. Stanton, president; L. M. Howland, treasurer; H. K. Gilman, secretary and general manager, and B. S. Church, consulting engineer. The association is designed to encourage the inventors of mechanical devices and to act as a medium through which they may advantageously reach the public. As to its character and standing the association refers by permission to the Chemical National Bank, New York; Guarantee Trust and Safe Deposit Company, Philadelphia; Tremont National Bank, Boston.

List & Mitchell, engineers and contractors, of Pittsburgh, are engaged in the erection of a plant for manufacturing gas from slack coal for the Bellaire water-works, at Bellaire, Ohio. The design of the plant is very simple. It consists of a furnace into which slack is dumped. The furnace generates the gas, which by means of pipes is conducted to the fire-boxes under the boilers. The system saves the gas that usually goes out of the smoke-stacks. The power-house will have two furnaces, each of which will supply two boilers. If the plant is a success most of the glass-houses will put them in, as it is said to be the cheapest gas process known. The two furnaces at Bellaire will cost \$1700, and the inventor promises to save 30 per cent. in coal bills or receive no compensation.

Prospectuses of Southern Iron Companies.

We have recently received several prospectuses of Southern enterprises, some of which are of a very ambitious character. Prominent among them is that of the American Association, Limited, which is an English company who have acquired the ownership of large tracts of mineral lands in the vicinity of Cumberland Gap in the States of Virginia, Tennessee and Kentucky. The company have issued a pamphlet of 54 pages, accompanied by a map showing the location of their property. The pamphlet contains reports of experts who have examined their lands and investigated the character of the minerals which have been found on them. The deposits of iron ore and coal are stated in these reports to be of very great extent, as well as of high character. Accompanying the pamphlet, circulars are sent out describing the enterprises at Cumberland Gap and Middlesborough, Ky., which have already been started under the auspices of the company. Among these are coal-mining companies, brick-works, fire-brick companies, machine-shops, saw-mills, and numerous small establishments which have been attracted to that section through the inducements held out by the owners of the property. The projected railroad connections are quite numerous, and if but half of them are completed the region will be brought into very intimate connection with other sections of the country. Prominent among the projected enterprises acquiring control of mineral lands from the company is the Middlesborough Iron and Steel Company, with a capital of \$3,000,000, who contemplate the erection of blast furnaces, steel-works, rolling-mills, bridge-works, pipe foundry, &c. An axe and tool works and a handle-works are also proposed, each with a capital of \$75,000. A weekly newspaper has been started at Middlesborough under the name of

Cumberland Gap, which gives a great deal of information regarding the resources of the region, and pays special attention to the developments which are now in progress. The American Association seem to be actively at work, and are influencing quite a variety of investments in that richly-endowed but hitherto almost unknown and inaccessible part of the country.

The Georgia Mining, Mfg. and Investment Company, of Georgia, whose office is at Atlanta, Ga., have issued an exceedingly attractive pamphlet illustrating and describing their properties. The illustrations comprise about a dozen well-executed photo-types of a character rarely seen in pamphlets of this kind. The company own the entire capital stock and operate the properties of the following corporations: The Dade Coal Company, Castle Rock Coal Company, Walker Iron and Coal Company, Bartow Iron and Manganese Company, Georgia Iron and Coal Company and Chattanooga Iron Company. Directing the operations of all these companies, the Georgia Mining, Mfg. and Investment Company control the mining of coal and iron ore, the production of limestone, the manufacture of coke and the production of pig-iron. With their present equipment they have an annual producing capacity as follows: Coal, 50,000 tons; coal converted into coke, 85,000 tons; hematite ores, 50,000 tons; fossil ores, 50,000 tons; manganese ores, 5000 tons; limestone, 25,000 tons, and pig-iron, 45,000 tons. Improvements are in progress to increase the coal and coke output at least 10 per cent. The properties of this company are all well developed, and their various mining and manufacturing operations are at the present time in full progress. The authorized capital of the company is \$5,000,000. Senator Joseph E. Brown, of Georgia, is president of the company and John W. Hoffman, of Philadelphia, is general manager.

The Chickamauga Iron and Land Company have issued a circular and map showing their iron-ore and coal property, which lies in the northwest corner of Georgia, within a few miles of Chattanooga. They have 16,000 acres of land on which iron ore outcrops, in connection with 4000 acres of bituminous coal land and 2500 acres of the town site of Crawfish Springs. The ore is the stratified red fossiliferous of the character which has been so largely used in Alabama for years past. The town site is in the vicinity of the localities in which the battles of Chickamauga and Lookout Mountain were fought. The location is claimed to be most excellent, being between the Birmingham and Anniston developments in Alabama on the south and Chattanooga on the north. George W. Ware, 1329 South Broad St., Philadelphia, is the agent for the sale of this property.

A press dispatch from Chicago states that the Illinois Steel Company have purchased a large tract of land adjoining the South Chicago Rolling Mill, and will at once proceed to erect a large plate plant, in which will be employed 2000 additional men. This new mill will be entirely devoted to the manufacture of steel plates for vessels.

There has been a considerable decline in the volume of immigration into the United States during the last fiscal year, the number arriving being 438,614, as against 539,815 during the fiscal year 1888, a decrease of 101,201. This decline was mainly in arrivals from the following countries: From Great Britain and Ireland a decrease of 27,607; from Italy, 26,229; from Norway and Sweden, 24,196; from Austria-Hungary, 11,637, and from Germany, 10,133.

The Iron Age

New York, Thursday, August 1, 1889.

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CHAS. KIRCHHOFF, JR., - EDITOR.
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RICHARD R. WILLIAMS - - - HARDWARE EDITOR.
JOHN S. KING, - - - BUSINESS MANAGER.

A Year's Foreign Trade.

The United States Bureau of Statistics has just issued its report on the foreign trade of the country for the fiscal year ended June 30, 1889. The total value of the imports and exports of merchandise during this period is put at \$1,487,529,275, against \$1,419,911,621 in the fiscal year 1888, showing a gain of \$67,617,654, and coming very close to the figures of 1880, 1881 and 1883, when high tide in our foreign commerce was reached. These are enormous figures, so large that it is unnecessary to cite the statistics of the foreign trade of other countries to prove that the United States furnishes a very important part of the grand aggregate of the international exchanges of the world. The value of the imports of merchandise amounted to \$745,127,476 in the fiscal year just ended, as compared with \$723,957,114 in the fiscal year 1888, showing an increase of \$21,170,362. The imports of the past year were the largest in the history of this country, the nearest approach to them having been in the year 1882, when they amounted to \$724,639,574. The exports of merchandise reached a total value of \$742,401,799, against \$695,954,507 in 1888, which was an increase of \$46,447,292. The exports of the past year were the largest since 1883, and were only exceeded by the exports of 1881, 1882 and 1883, those three years covering a most remarkable period in the export trade of the country.

Notwithstanding the huge aggregate of the imports of merchandise in the past year, the apparent excess of imports over exports was only \$2,725,677. In the previous year the adverse balance of trade was \$28,002,607. From 1876 to 1887, inclusive, the balance of trade had been in favor of the United States, the yearly average of the excess of exports over imports during that period of 12 years having been \$134,388,312, attaining its climax in 1881, when it amounted to \$259,712,718. These figures are only an apparent balance of trade, inasmuch as the total cost of foreign goods to American consumers is not obtained. The valuation of imported goods is their foreign valuation in the market in which they are purchased. Before they reach merchants or consumers in this country they incur additional charges for freight, insurance and commissions. If consigned to agents here the goods will also have a profit added to their cost abroad before they pass into the regular channels of domestic trade. Undervaluations also play a very important part, which must not be overlooked. The ocean-carrying trade being largely in the hands of foreigners, even the freight paid on imported goods passes into foreign instead of American pockets. The actual cost to Americans of the merchandise imported must therefore be considerably in excess of the

amount figuring in Government returns. On the other hand, the exports of this country are also probably undervalued for various reasons, but the discrepancy between the official valuations of exports and the amount actually realized for the goods by American merchants and manufacturers can by no means cover the difference between the valuation of foreign imports and their cost when they have reached domestic channels of trade. These matters need to be taken into serious consideration when the question of the balance of trade on exchanges of merchandise is discussed. When the balance of trade is reported to be in our favor it is undoubtedly much below the official figures, and when it is against us it is evidently more seriously so than would appear from an inspection of the usual statistical tables.

The movement of specie reported is also of much interest. The exports of gold and silver during the last fiscal year amounted to \$96,641,533, while the imports were but \$28,963,073, showing an excess of exports of \$67,678,460. The exports of gold were the largest since 1864, amounting to \$59,952,285, or but little less than two-thirds of the entire exports of specie for the year. Gold was, however, imported during the year to the extent of \$10,284,858, so that the net loss to the country was but \$49,667,427. The exports of gold were heaviest in the months of May and June last. Taking the five fiscal years ended June 30, the imports of gold aggregated \$144,564,821 and the exports amounted to \$139,459,789, so that, notwithstanding the recent heavy exports, the net gain to the country in gold by the foreign movement of five years is \$5,105,032. In the fiscal year 1888 the imports of specie exceeded the exports by \$12,923,803, and in 1887 there was a similar excess of \$24,173,101. The changed movement latterly in the flow of the precious metals appears to be the direct consequence of the excessive importations of the past two years.

The World's Fair of 1892.

The sentiment of the meeting held in the Mayor's office on Thursday of last week was unanimously in favor of undertaking a world's fair in this city in 1892. Committees were authorized to inaugurate the necessary measures preliminary to the enterprise. This action is accepted as decisively committing the city in favor of the scheme. An excellent beginning has thus been made, the enthusiasm evinced being an earnest of the cordial support which the project is receiving from all classes of citizens and from every interest. The real work begins with the appointment by Mayor Grant of the four committees on Organization, Finance, Legislation and Site and Buildings. The Mayor has already displayed excellent judgment in requesting all the principal associations and societies of the city to select representatives to serve on the committees. By this means every class of population and division of trade will be represented at the outset, and at once the impression is produced that the exhibition will be a thoroughly popular affair and in no way or sense exclusive. The chief difficulty and one that must be met without delay rests in the selection of the site. Whatever place

is chosen there will be disgruntled ones, and the aim of the committee should be to act in so independent a manner that this carping minority shall be of the smallest possible proportions. The unfortunate experiences of 1880 may now be turned to good profit by the committee if from them they will be enabled to avoid the dangers that wrecked the former enterprise. As soon as the project is well afoot the metallurgical and mechanical trades must think over the action they will take in the matter, for it goes without saying that these interests will be a chief feature in a world's fair gotten up by a nation that ranks foremost in industrial progress. It is reported that the American section at Paris is not a very creditable exhibit. There is therefore all the more reason for the United States to show to the nations of the world in 1892 that they have not been idle in the possession of vast resources, but that in all that goes to make material greatness they are far in the van of civilization.

The Russian Petroleum Trade.

Merchants exporting Russian petroleum from Baku, especially the firm of Nobel Brothers and the representatives of the Rothschilds, have of late years made well-directed efforts to introduce it extensively not only in Europe, but even in Asiatic countries, and gradually the American oil has met with a competitor in those regions not to be despised. The following table shows the progress made in the Russian Caucasus by this industry during the last five years, in puds of 36½ American pounds:

	Production.	Export.
1884.....	89,000,000	54,685,429
1885.....	115,000,000	68,601,310
1886.....	123,000,000	72,849,104
1887.....	131,000,000	79,495,123
1888.....	165,000,000	117,821,020

The importation of Russian refined petroleum into British India increased from 1,577,000 gallons in the fiscal year 1886-87 to 5,036,000 gallons in 1887-88 and to 17,516,000 gallons in 1888-89. It is packed the same way as ours, in cases of two 4-gallon tins. Although the quality is not quite so good as American, it is sold cheaper. It has to be burnt in special lamps, which the consignees have introduced everywhere. British India in 1880-81 imported 9,500,000 gallons of American oil; in 1883-84, 12,500,000 gallons; in 1884-85, 26,000,000 gallons; in 1886-87, 29,000,000 gallons, after falling off temporarily to 20,000,000 gallons in 1885-86. Meanwhile Russian oil was introduced. In 1887-88 India imported 25,000,000 gallons of American, but in 1888-89 it had been reduced to 20,000,000 gallons, although India then imported a greater amount than ever from all quarters, the total aggregating 38,000,000 gallons. As India in particular holds out the prospect of a still more rapidly increasing petroleum consumption, it is not a matter of indifference to our East India merchants whether we are going to maintain our foothold there or not; hence this particular market is being very closely watched among shippers. The falling off of our oil in that quarter is, therefore, anything but pleasant to contemplate. Fortunately, while repeated assertions are being received from the Caucasus that the oil wells there begin to show signs of exhaustion, our own export has received a

notable impetus. According to the returns of the Bureau of Statistics the last six fiscal years exhibit the following export figures:

Fiscal year.	Gallons.	Fiscal year.	Gallons.
1884	513,660,062	1887	562,809,367
1885	574,656,180	1888	573,351,638
1886	577,781,732	1889	612,688,079
Total	1,666,100,024	Total	1,783,842,984

The exports of refined and crude oil and naphtha from all ports from January 1 to July 20 have been as follows:

Ports of shipment.	1889.	1888
Gallons.	Gallons.	Gallons.
Boston	2,713,673	1,696,592
Philadelphia	70,650,455	62,783,364
Baltimore	1,898,349	3,773,922
Perth Amboy	10,741,527	12,922,174
New York	226,958,523	191,703,122
Totals	312,962,527	272,879,174

In order to ascertain to what countries there has been an increase or decrease of exportation from New York, we have to examine the details as shown in the returns relating to that port alone contained in the ensuing tables, which cover the period from January 1 to July 23:

Destination.	Refined oil.	
	1889.	1888.
Gallons.	Gallons.	Gallons.
England	23,000,186	21,825,038
Germany	39,188,246	44,067,278
Sweden and Norway	1,962,866	1,527,545
Denmark	889,216	1,570,832
Belgium	11,506,073	16,844,349
Holland	20,220,737	10,972,468
Mediterranean	1,527,030	1,971,080
India	20,281,621	16,791,490
China and Japan	26,632,460	18,331,420
Philippines, Fanda Islands and Straits	26,729,540	15,569,410
Africa	3,027,552	2,015,808
Australasia and Oceania	4,561,067	5,299,816
South America	11,305,252	9,347,076
Rest of America	5,176,269	6,153,902
Totals	196,648,115	172,308,112

	Crude oil.	
	1889.	1888.
Gallons.	Gallons.	Gallons.
France	16,114,678	11,306,719
Germany	1,288,003	817,022
Rest of Europe	2,807,513	7,862,309
Cuba	1,769,529	1,741,949
Mexico	2,280,644	.....
Totals	24,260,367	21,727,999

The shipments to India, it will be seen, show quite a gain. To other Asiatic countries the increase is something unprecedented, and even South America has taken considerably more. As for our European petroleum trade, there are at present engaged in the traffic no less than 21 tank steamers of a total capacity of 468,000 barrels, and eight additional ones have been chartered of a total capacity of 165,000 barrels. Two of the latter have been chartered by the Standard Oil Company, and are steamers that hitherto were in the Russian trade. In that direction tank steamers are rapidly superseding sailing vessels.

A couple of months since the first alarm of impending exhaustion of the Caucasian wells was given, and naphtha advanced considerably in that region, followed by a more liberal run, causing the excitement to subside for the time being. On July 25 the following cable dispatch was received from Berlin: "Intelligence has been received here from Baku to the effect that a permanent decrease is showing itself in the production of naphtha in that region, and that there is a probability of a very serious crisis shortly coming. The naphtha basins of the Apsheron Peninsula and Bibiccat are no doubt still very productive, but the yield is no longer to be relied

on. Almost all the factories at Baku are suffering for want of the raw product. The price has risen from 2 copecks to 5 or 6 copecks per pud. Messrs. Rothschild's representative manager of the Caspian and Black Sea Naphtha Company has received orders to proceed to Paris, after a thorough investigation has been made of the state of affairs by the company's engineer at Balachona." There is for the present no means of ascertaining to what extent there are real grounds for alarm; speculators may exaggerate the rumors of the threatened permanent deficit in the supply, but as long as they are not disproved the problem exists. At any rate, it is gratifying to note that our share in the world's petroleum trade, instead of showing a decrease, is on the contrary greater at present than ever before.

Threatened Strike of Coke-Workers.

It seems that the coke-workers of the Connellsville region are very much in earnest in demanding an advance in wages. Last week we published a statement showing the attitude of the workingmen with reference to this question. They asked for an advance, naming Saturday of last week as a date for a conference at Everson with the operators. None of the latter met the delegates of the workingmen at the time designated, and accordingly a strike has been ordered, which is to begin to-day. If measures of conciliation are not adopted very soon the chances are in favor of a serious condition of affairs in the district. As the Connellsville coke region furnishes fuel to so many of the blast-furnaces of the country, this means much annoyance to manufacturers of pig-iron. The elements exist in the coke region for a very disagreeable controversy. The coke-workers are numbered by the thousand, and previous labor troubles among them have been characterized by much lawlessness. The operators claim that with coke selling at present prices they cannot afford to pay higher wages. This may be and doubtless is true, but it would have been well for them to meet the representatives of their employees and talk the matter over. The conference might have been fruitless of good results, but the workingmen would have been treated with courtesy, and politeness often goes a great way in preventing disagreements. In the interest of manufacturers of pig-iron, whose operations may be sadly interfered with for lack of fuel, we hope that the coke operators and the workers will settle their differences speedily.

How to deal with Government subsidies is becoming a practical question. It is acknowledged on all hands that a leading disturbing element in the United States is the competition of a foreign railroad supported mainly by the Canadian Government. In the same manner, on the highways of maritime commerce American ships are disturbed to such an extent by Government subsidies, auxiliary to private enterprise, that our ships are literally jostled from the ocean. Great stock companies, backed by the British Government, are mainly responsible for the rapid disappearance of the American merchant marine in the Transatlantic trade, and now the Transpacific steamship lines are

likewise endangered by the threatened powerful competition via British Columbia. The Englishmen expect to establish lines both to Yokohama and Australia. Where all natural laws governing the course of trade are disregarded it is in vain to look for relief from the "due course of events." The evil complained of is self-perpetuating and the advantage seized upon as the reward of enterprise and audacity at last becomes a permanent possession. Thus that which in the beginning was abnormal, forced and unnatural becomes recognized as an established system upon reaching its complete development. Thus, too, he who wins takes the prize.

The Illinois Steel Company, of Chicago, have succeeded in eclipsing all previous records on a single week's output of steel rails and ingots, as will be seen by the following schedule:

	Ingots.	Rails.
	Tons.	Tons.
Monday, July 22	1,358	969
Tuesday, July 23	1,196	1,022
Wednesday, July 24	1,408	1,149
Thursday, July 25	1,309	1,143
Friday, July 26	1,295	1,051
Saturday, July 27	458	419
Totals	7,024	5,783

This is said to be the largest 11-turn product that has been made by any mill in the world. The rails were all 66-pound except one turn, which were 75-pound, requiring two changes of rolls during the week. The Union Mill, at which this run was made, has recently been equipped to roll two two-rail blooms at once.

The Hudson River Bridge at Peekskill.—Gen. Edward W. Serrell, the chief engineer of the Hudson Suspension Bridge and New England Railway Company, has recommended to the management that the contract for the steel for the cables of the Highland Bridge across the Hudson River at Peekskill should be awarded to Bullivant & Co., of London, England. There has been great competition for this contract, which is one of the largest for steel of this kind ever undertaken by one firm; it will amount to over 6000 tons. For more than a year the contract has been sought by the most prominent wire-makers of the United States and Europe; many hundreds of tests have been made by the Government proving-machines and by the wire-makers, both here and abroad. The object of the company has been to get the very best that could be had in the world. There are to be 954 strands, each composed of 61 wires, and each to be more than a half mile long. There are not to be any joints or welds in any of the wires, or any tucks under, and the strands are to be made with reference to carrying the greatest possible weight with the least amount of metal, and it is said that the metal recommended is the strongest ever used. It will be exclusively crucible steel. The makers offer to deliver the entire quantity within 11 months, ready for erection. The Highland Bridge has been under construction for some time, and the foundations on the east side are completed, while those on the west side are in rapid progress. The length of the span over the river will be 1620 feet between the faces of the masonry, which is slightly in excess of the length of span of the Brooklyn Bridge.

Two nickel mines near Sudbury and Whitefire, in Canada, lately opened by the Dominion Mining Company, are promising well, and smelting-works are about to be erected.

Washington News.

(From Our Regular Correspondent.)

WASHINGTON, D. C., July 30, 1889.

The lead-ore inquiry has made no material advance toward a settlement upon the points of controversy presented some time ago by the opposing interests in their arguments before the Secretary of the Treasury, nor is there any prospect of an immediate ruling of the Department. There has been considerable correspondence with various parties on the subject. The Department is also making its own investigation and may reach a decision, but not very soon. It is intimated that a decision will be promulgated before the meeting of Congress. Therefore the Department will not wait for any legislation which may be proposed affecting tariff revision. The question affects such extensive interests that it is somewhat difficult to solve the problem. The admission of lead ore under the classification of silver ore, and therefore free, is not in accordance with the views of the Department, but the establishment of the doctrine of classification by quantity and not component material of chief value, which is usual, is the principal complication.

The close attention which has been given by Secretary Tracy to the condition of the principal navy-yards and his repeated conferences with naval experts and ship-builders is beginning to materialize in formal steps in the direction of a comprehensive report respecting the kind of navy the nation requires, of what class of vessels and of how many it shall be composed, the percentage of annual expenditure for repair, and other information of a kindred character. In order to strengthen his position he has called to his aid several boards of officers to inquire into certain matters of detail and report. His communication to Congress will possess all the merits of a feasible plan, upon which Congress can act intelligently. The chief waste in the naval expenditures has been the absence of some defined plan under which appropriations should be made. This Government is expending millions in a period of years for revenue, marine, light-house, coast-survey, fish-commission and other vessels, which might be made convertible into war-ships. The Secretary in his plan proposes to have but one central idea, and that the utilization of everything afloat belonging to the Government as part of a system of naval duty. The battle-ships, cruisers, coast-defense and torpedo vessels for offensive operations would thus be supplemented by the Treasury fleet for dispatch-boats, gun-boats and for duty about the harbors and along the coast.

The officers of the navy are not taking very kindly to ex-Secretary Whitney's importation of British models for vessels for the American navy. They claim that the Barrow plans for the Texas, purchased at a high price, will not work in practice. A theoretic solution of the specifications shows that a vessel constructed in accordance with the plans will be under water. The officers of the construction and engineering bureaus say that in every branch of naval design, construction and ordnance the Navy Department of the Government of the United States can now surpass any nation on the globe if Congress will make the appropriations.

The work of establishing a great shipyard at Newport News by the Chesapeake Dry Dock and Construction Company is far advanced, and by January 1, 1890, the plant will be in perfect condition, prepared for the construction of all classes of iron and steel ships. C. P. Huntington, A. A. Lov, J. E. Simpson & Co., Samuel Sloan, Calvin

S. Brice and others are associated in this enterprise, doubtless encouraged in the expectation that the new Congress will take action conducive to the ship-building interests of the country. The necessary buildings are nearing completion. The capital invested is \$700,000 and can be indefinitely enlarged. The extensive waterfront is ample for any demands, if enlargement of the plant is deemed advisable.

Bessemer Steel Production.

The American Iron and Steel Association have received from the manufacturers complete statistics of the production of Bessemer steel ingots and Bessemer steel rails in the United States in the first half of 1889. The following table shows the production of Bessemer steel ingots in the first half of 1889 compared with the production in each half of 1888. The production of steel ingots by the Clapp-Griffiths process is included, but a statement is also added of the ingots produced by this process alone:

Ingots.	First half 1888. Net tons.	Second half 1888. Net tons.	First half 1889. Net tons.
Pennsylvania	729,993	862,636	930,748
Illinois.....	321,115	299,741	245,171
Other States.	333,180	265,835	244,796
Totals.....	1,384,288	1,428,212	1,420,715
Clapp-Griffiths only...	36,070	45,087	38,356

The following table shows the production of Bessemer steel rails of all kinds and sizes in the first half of 1889 compared with the production in each half of 1888. This statement does not include a few thousand tons of Bessemer steel rails which were rolled in iron rolling-mills from purchased blooms:

Rails.	First half 1888. Net tons.	Second half 1888. Net tons.	First half 1889. Net tons.
Pennsylvania	420,101	491,105	523,882
Illinois.....	256,823	231,816	179,201
Other States..	98,337	31,650	16,489
Totals.....	775,261	754,571	719,572

PERSONAL.

Edmund C. Pechin, of Cleveland, Ohio, has been engaged by the Virginia Steel Company as geologist and mining engineer, with headquarters at Roanoke, Va.

The National Tube Works Company, of McKeesport, Pa., have promoted A. Chandon to be local manager and general auditor of the company's business at McKeesport. Mr. Chandon has been the company's statistician for several years. W. A. Ihs, the former general auditor, was compelled to retire on account of ill-health.

A. L. Reinmann, an electrician in the employ of the Westinghouse Electric Company, at Pittsburgh, left for Europe last week, where he will study the great electrical works in Berlin, London and Paris.

S. Stutz, the well-known mining engineer, of Pittsburgh, left last week to visit the Paris Exposition. Before returning Mr. Stutz will visit the principal mining regions of the old countries to investigate the coal and coke industries.

Edward Young, for some years cashier for Seaman, Sleeth & Black, proprietors of the Phoenix Roll Works, at Pittsburgh,

has located in Washington, D. C., where he has assumed the duties of chief of a division in the Treasury Department.

Thomas McClure, of John Dunlap & Co., manufacturers of tin-ware, at Pittsburgh, returned home last week after a three-months' pleasure trip to Europe.

Thomas G. Boyle, of the iron brokerage firm of T. G. Boyle & Co., Pittsburgh, will sail next week for Europe, to be absent several months.

OBITUARY.

CHARLEMAGNE TOWER.

Charlemagne Tower, of Philadelphia, died at his summer residence at Waterville, N. Y., on the 25th ult. His age was 81, and his death was due to paralysis. He leaves four daughters and a son. Mr. Tower was born in Oneida County, N. Y., graduated from Harvard University in 1830, studied law in New York City, where he practiced his profession for some time, and went thence to Pennsylvania in 1846. Mr. Tower was the leading counsel in the famous trial that arose out of questions relating to the Munson and Williams estate, in Schuylkill County, comprising a large body of coal lands, the litigation in regard to which he carried along for more than 25 years. He mastered it and perfected the title to these lands, which now belong to the Philadelphia and Reading Coal and Iron Company. He became the owner of large bodies of coal lands himself, and was a director in several corporations. Mr. Tower was actively interested in the construction and management of the Northern Pacific Railroad, and a member of its board of directors for several years.

The greatest and most successful undertaking, perhaps, of his long business career was his development of the iron resources of Minnesota, now well known to the world as the Vermillion range. It was about 15 years ago that Mr. Tower learned of the existence of iron-ore deposits near Vermillion Lake, a body of water 90 miles northwest of Duluth. The country was then a wilderness. An expert was sent out by Mr. Tower in 1875 to make a thorough examination, and the report was so favorable that he determined to buy some land and build a railroad to bring the ore to market. He finally purchased about 20,000 acres of mineral land near the lake. Years were required to get things into shape. On July 31, 1884, the first train-load of ore passed from Vermillion Lake to Two Harbors, on Lake Superior, whence it was shipped to Cleveland. Before the close of the year 68,000 tons of ore had been shipped from the mines, and by 1887 the annual output had been increased to 400,000 tons.

On July 5, 1887, Mr. Tower disposed of his large interests in the Vermillion range to a syndicate who proposed to extend the railroad and develop the mineral resources of the district to the east and northeast of the property which he had developed. When he handed over to the syndicate the stock and bonds of the Duluth and Iron Range Railroad and the title-deeds to some 20,000 acres of land, he received in return certified checks on banks and financial institutions to the amount of over \$6,000,000. The syndicate to which Mr. Tower disposed of his property was composed of H. H. Porter, a prominent Chicago railroad operator and capitalist; J. C. Morse, of the Union Steel Company, of Chicago; Marshall Field, of Chicago; D. O. Mills, of New York; J. D. Rockefeller, of the Standard Oil Company, and a number of others.

DENNIS REILLY.

Dennis Reilly, of the firm of Reilly & Oliver, proprietors of the Easton Sheet Iron Works, at Easton, Pa., died on July 16,

at Easton, aged 53 years. Mr. Reilly was born in County Cavan, Ireland, and came to America when but about 12 years of age. Many years ago he became a member of the firm of Reilly, McGrann & Co., contractors, who in 1864 erected the large iron bridges of the Lehigh and Susquehanna Railroad across the Delaware and Lehigh rivers. The same firm also graded about five miles of the company's road-bed west of Easton. Later the deceased became a member of a firm of contractors known as Reilly, McGovern & Co., who took large contracts in the building of the Easton and Amboy and the Stony Creek railroads. In 1875 Mr. Reilly associated himself with Theodore Oliver in the manufacture of sheet-iron, in which enterprise he continued his interest until the time of his death. The remains were taken to Lancaster, Pa., for interment. The business of the late firm will be continued by Mr. Oliver.

CORRESPONDENCE.

The Cast-Iron-Pipe Trade.

READING, PA., July 29, 1889.

To the Editor: Permit me to make the following comments on your article relating to cast-iron-pipe foundries on page 127 in your issue of July 25, 1889: While it may be true that there are larger demands on pipe-foundries for pipe at this time than there were one year ago, the truth still remains that the demand is not equal to the supply. Prices are lower now than they have been at any time since the beginning of July, 1879, before the revival, and are almost down to what they were then. All orders held at this time can, in my opinion, be filled within the next four months. With the increased number of new pipe-foundries and enlarged capacity of old ones it will require an unusual demand to overreach the supply. We have a large shop well equipped and ready to start up at any time should prices make it an object for us to do so. We did not bid at Albany on the 42-inch pipe, it being an unusual size, as we had no fixtures for them, and that was the trouble with the other bidders in attendance, and the price named by the McNeal Pipe and Foundry Company, of Burlington, N. J., was, in my estimation, quite low enough under the circumstances, as well as the price for the specials, which was only \$4 above the price per ton for the ordinary run of specials.

If engineers will compel foundry men to get up pipe and specials to suit their own particular fancies, the cities and towns for which such pipe and castings are proposed should be willing to pay for them. The fixtures required for any size of pipe, particularly the larger ones, can only be had by a large outlay of money, and when pipe is sold without profit it would be foolish for a pipe-maker to assume to make a pipe of an unusual size unless he could get a figure above such ruling price.

Truly yours, P. D. WANNER,
Chairman Mellert Foundry and Machine Company, Limited.

The tallest chimney in this country is the new stack of the Clark Thread Company, at Kearney, near Newark, N. J. It is a circular shaft 335 feet high and 28½ feet in diameter at the base. This chimney cost \$30,000 and contains 1,697,000 bricks. It was finished in September last, but its supremacy among American chimneys will be brief, for one is now being erected for the Fall River Iron Works Company, in Fall River, Mass., that will be 340 feet high and 30 feet in diameter at the base. Chicago's highest chimney is 350 feet tall. American chimneys, however, are mere pigmies beside some of the tall Scotch and English stacks. The great Townsend stack at Glasgow, the

tallest in the world, is 454 feet high and 32 feet in diameter at the base. Tennant & Co., of Glasgow, have a chimney 435½ feet by 40, and the mills of Dobson & Barlow, Bolton, England, have an octagonal stack 367½ feet high and 33 feet 10 inches in diameter at the bottom.

Production of Pig-Iron.

The following tables of the production of pig-iron in the United States in the first six months of 1889 have been prepared by the American Iron and Steel Association:

Total Production of Pig-Iron.

States.	Production. Tons of 2,000 pounds. (Includes spiegeleisen.)		
	First half of 1888.	Second half of 1888.	First half of 1889.
Maine.....	2,550	3,024	2,700
Massachusetts.....	7,005	6,243	2,651
Connecticut.....	10,236	11,408	12,108
New York.....	134,300	122,280	144,613
New Jersey.....	50,383	51,489	67,749
Pennsylvania.....	1,639,845	1,958,341	2,012,804
Maryland.....	6,250	11,356	10,233
Virginia.....	92,465	104,901	112,328
N. Carolina.....	1,100	1,300	922
Georgia.....	23,658	15,739	11,338
Alabama.....	109,696	279,796	364,346
Texas.....	2,968	3,619	1,411
West Virginia.....	45,601	49,658	72,775
Kentucky.....	21,267	35,323	23,865
Tennessee.....	122,817	145,114	147,401
Ohio.....	28,536	575,282	602,476
Indiana.....	7,300	7,960	7,806
Illinois.....	294,520	284,787	282,153
Michigan.....	106,578	106,673	100,363
Wisconsin.....	51,477	64,560	74,065
Missouri.....	60,789	30,994	42,795
Minnesota*.....	.....	.....	.....
Colorado.....	11,522	9,355	.....
Oregon.....	.....	2,500	5,426
California*.....	.....	.....	.....
Washington Ter.....	.....	4,093	5,571
Totals.....	3,382,503	3,886,004	4,107,899
Anthracite.....	955,448	970,281	917,611
Charcoal.....	278,238	320,551	306,780
Bituminous.....	2,148,817	2,595,172	2,883,508
Totals.....	3,382,503	3,886,004	4,107,899

* A blast-furnace building.

† Furnace idle.

Production of Bessemer Pig-Iron.

New York.....	18,732	33,342	29,233
New Jersey.....	14,585	12,820	13,946
Pennsylvania.....	746,479	1,024,065	900,239
West Virginia.....	38,557	45,576	63,042
Tennessee.....	9,315	.....	.....
Ohio.....	138,828	197,927	207,407
Illinois.....	275,675	275,401	247,101
Missouri.....	54,144	22,376	37,080
Michigan.....	3,000	.....	.....
Wisconsin.....	17,136	17,400	1,625
Colorado.....	10,478	2,566	.....
Totals.....	1,319,929	1,634,473	1,589,673

The quantity of spiegeleisen and ferromanganese made in the first half of 1888 was 21,162 net tons; in the second half, 33,007 tons; in the first half of 1889, 34,760 tons.

The stocks of unsold pig-iron were as follows on June 30, as compared with previous stocks:

Total Stocks of Unsold Pig-Iron.

States.	Tons of 2,000 pounds.			
	Dec. 31, 1886.	Dec. 31, 1887.	Dec. 31, 1888.	June 30, 1889.
New England.....	9,218	7,930	11,269	19,347
New York.....	28,302	35,019	31,224	58,169
New Jersey.....	1,632	22,211	23,817	27,552
Pennsylvania.....	71,362	154,175	109,003	195,931
Maryland.....	5,455	1,167	1,900	2,218
Va., N. C., Ga. and Texas.....	13,346	6,848	18,913	30,662
Alabama.....	14,025	14,248	23,551	26,449
West Virginia.....	4,680	4,835	400	3,217
Kentucky.....	4,218	4,324	8,970	8,050
Tennessee.....	14,488	7,726	8,262	17,565
Ohio.....	24,069	33,007	37,103	70,960
Michigan and Indiana.....	41,953	39,319	39,886	37,257
Illinois.....	300	.....	7,163	17,365
Wisconsin.....	6,002	845	.....	.....
Colorado and Missouri.....	7,682	5,329	11,701	33,438
Pacific States.....	6,232	1,159	2,682	5,157
Totals.....	252,704	338,142	336,161	563,286
Bituminous.....	70,634	127,978	118,261	247,564
Anthracite.....	50,563	114,107	106,526	165,334
Charcoal.....	131,567	96,057	111,371	150,388
Totals.....	252,704	338,142	336,161	563,286

The Transfer of the Otis Works.

We take from a recent issue of the *Cleveland Iron Trade Review* the following details of the recent sale of the Otis Iron and Steel Company's works, in Cleveland, Ohio, to an English syndicate:

The new corporation are known as the Otis Steel Company, Limited. Their capital stock is £600,000 (in round figures \$3,000,000), in 60,000 shares of £10 each, issued as follows:

30,000 8 per cent. cumulative preference shares.....	£300,000
30,000 ordinary shares.....	300,000

Total.....£600,000

Dividends on the preference shares are payable half-yearly. In addition to the above shares there will also be issued £300,000 first-mortgage debentures, bearing 6 per cent. interest, in bonds of £100 each. These debentures will be secured by a trust deed, charging the freehold property and buildings, fixed plant and machinery of the company, and will be redeemable, at the option of the company, on six months' notice after the 1st day of January, 1900, at 110 per cent. Interest will accrue from the respective due dates of the various installments, the first payment to be made on the 1st of January, 1890. The vendors have agreed to take £100,000 in each of the above classes of security in part payment of the purchase money.

The following well-known gentlemen will constitute the new board of directors: J. T. Smith, late president British Iron and Steel Institute, chairman; C. F. H. Bolekow, chairman Bolekow, Vaughan & Co., Limited; B. Gibbons, director Ebbw Vale Steel, Iron and Coal Company, Limited; F. L. Lehmann, of Naylor & Co., New York; R. Wigram, of John Fowler & Co., Limited, Leeds, and director Great Northern Railway. Charles A. Otis, Thomas Jopling, Joseph R. Bole, managing directors and committee of management in America, will join the board after allotment.

Prior to the purchase of the property two sets of experts inspected the plant and investigated the books. The first set, Messrs. J. & P. Higson, 18 Booth street, Manchester, consulting engineers, put its value on January 1, 1889, at £642,793 (\$3,117,541.05). Their report concludes as follows: "We consider that the expenditure in the past, under the head of renewals and repairs, is more than sufficient to cover any possible depreciation, and that the cost of maintaining the works in their present state of efficiency in the future will be comparatively small. If we may forecast the future trade of America, we believe these works will always hold their own; in fact, from the monopoly already secured in special trades, we are of opinion that no other works of a similar nature possess the same advantages."

Messrs. Deloitte, Dever, Griffiths & Co., 8 Lothbury, London, E. C., chartered accountants, after going over the books of the company, reported that the net profits for the year 1887 were \$527,316.09, and for the ten years ending December 31, 1888, they were \$5,433,255.60, being an average profit per annum of \$543,325. The profits for the last ten years have been made after debiting revenue with \$993,648.69 for the cost of repairs and renewals of buildings, plant and machinery, the expenditure under these heads amounting in 1887 to \$134,616.60 and in 1888 to \$175,255.05. All management expenses, including the remuneration of the chairman and managing directors, had also been previously charged.

The prospectus of the new company states that the purchase price of the land, buildings, plant, machinery, stocks, stores, cash in hand, guaranteed assets and goodwill has been fixed at £900,000 (\$4,365,-

000), and is payable as to £600,000 (\$2,910,000) in cash, and the balance in shares and debentures in equal proportions of each class of security

	English money.	American money.
The land, buildings, fixed plant and machinery are valued by Messrs. Higson at.....	£300,201	\$1,892,474.85
The loose tools and duplicate machinery at...	26,313	127,618.05
Stocks on hand (manufactured steel and raw material).....	112,736	546,869.60
Cash, book debts, bills receivable and other liquid assets, as on January 1, 1889 (the date from which the business is taken over).....	113,543	550,683.55
Total.....	£642,793	\$3,117,646.06

The transfer of the property will be completed under the advice of Messrs. Cary and Whitridge, the American solicitors to the company. The laws of Ohio present no difficulties, but should it be thought advisable to avoid any apparent change in the local ownership of the property an American company will be formed, to which the conveyance will be taken.

It is further stated that Mr. Otis, the founder and president of the Otis Iron and Steel Company, and who is the owner of more than one-half of the property, has, in consequence of his age and the state of his health, determined to retire from active business, and with the consent of his partners to dispose of the same to a joint-stock company. He will continue for one year to act as chairman of the American committee of management, and Mr. Jopling and Mr. Bole, the present managing directors, have agreed to remain with the company for a period of five years.

The interior of Alaska and its more northerly regions remain still unexplored. The northwestern part of the Territory shares with Northwestern Siberia the possession of the coldest winter climate in the world, but even there it must be remembered that it is not always winter. A peninsula makes out from near the center of the western coast of Alaska, the nearest point between this continent and Asia, the two being separated by Behring Strait; the East and West confront each other. Here it is quite possible in clear weather to see the Asiatic coast, the distance across the strait being about 38 miles. Occasional intercourse between the natives of the two continents is maintained by means of sailing craft, and doubtless has been going on for hundreds if not for thousands of years. In the summer season the passage across the strait is often made in open, undecked boats. Our geographies and encyclopedias help us to little more than the boundaries of this great Territory, which contains nearly 600,000 square miles.

We see it stated that within the radius of one mile from where the New York City Post-office now stands, more mail matter, in volume and value, is collected and distributed every day than within any other area of four times its extent in the city. Without attempting to verify the truth of this assertion, the general statement may be accepted as substantially correct. Therefore a weighty argument is found for retaining the post-office headquarters in their present location, near to the great business center. The value of the down-town distribution is a much more important consideration than its bulk.

The value of the new buildings erected within the city limits of Cleveland during the past two years, including business blocks, hotels, residences, &c., reaches the handsome sum of \$3,449,828.

TRADE REPORT.

Chicago.

Office of *The Iron Age*, 50 Dearborn street, CHICAGO, July 29, 1889.

Pig-Iron.—The effect of the heavy buying during the past two months is now being felt. It was expected that a season of quietness would follow the extraordinary activity, and if it had occurred two weeks ago it would not have caused surprise. A great many orders are still being placed. A portion are supplementary to previous contracts, but the majority come from general foundries and in quantity are contingent upon work under contract. Now and then an old option is revived and accepted at prices prevailing 30 days ago. But the new buyer finds sellers riding on the top crest of the high-tide prices. Favoritism is on the wane on incidental transactions, and the furnace men's backbone is beginning to protrude more than the condition warrants. At the moment production and consumption are about a stand-off, and the future depends upon increased consumption or reduced production. Either will establish a firm market at to-day's quotations for the balance of the year. The increase in consumption must come largely from railroads, if it comes, and the prevailing question is, What are they going to do? Rumors of numerous orders for cars about to be or being placed are prevalent, but the amount of Iron taken for the manufacture of the supplies is not consistent with the amount necessary to build all the cars said to be under purchase. Crops are heavy, prices are low. There is no certainty that the marketing of these crops will require greater capacity than is now possessed by the transporters. Freights are low and railroad companies will not incur unnecessary expenses. These points, being closely allied with the Pig and Finished-Iron markets, are probably more generally discussed at this time than any other phase of the situation. For the immediate 30 days there is little concern. General consumption will take in carload trade enough Iron to keep prices steady and support the faith of the sanguine. But not all makers of Pig-Iron see the future through the same lens, and it is the doubting brethren who will keep right on taking all the orders for Iron they can get at present prices. Charcoal and local furnaces have sold up so closely that they have just about enough overplus to supply the demand from small consumers. Southern Foundry Irons for prompt delivery are still held at prices which nullify all transactions. For October, November and December deliveries 50¢ per ton premium is asked for some brands. Quotations are as follows, cash, f.o.b. Chicago: Bessemer, \$17; Lake Superior Charcoal, \$18.50 @ \$19; Local Coke, No. 1, \$16; No. 2, \$15; No. 3, \$14; Chicago and Bay View Scotch, No. 1, \$16; American Scotch (Blackband), \$17.50 @ \$18; Southern Foundry, No. 1, \$16.50; No. 2, \$15.50; No. 3, \$14.50; No. 1, Soft, \$15.50 @ \$15.75; No. 2, \$14.50; Gray Forge, \$14.50; Mottled, \$13.50 @ \$14; Tennessee Charcoal, No. 1, \$17.75; Alabama Car-Wheel, \$24 and \$25; Hanging Rock, No. 1, \$18.50; Jackson County, No. 1, \$17.50 @ \$18.

Bar-Iron.—There are a great many inquiries from regular consumers, but all are slow in placing orders. Jobbers are pursuing about the same course with the mills. The determination of makers to get higher prices is being pretty severely tested. The majority of them do not want orders for August, therefore it is easy to say no when the price offered is less than what they are asking. Buyers report that 1.55¢ at

mill is uniformly quoted on Common Iron. Where mills have plenty of orders booked or specifications are not specially desirable they ask 1.60¢. On Single Refined 1/16¢ advance and on Best Refined 1/16¢ advance is required. From store jobbers quote 1.70¢ @ 1.75¢ for Common, 1.85¢ for Single Refined and 1.90¢ @ 2¢ for Best Refined.

Structural Iron.—The feature of the week was the letting of the contract for the Iron material in the Leiter Building, which will be 465x180 feet and seven stories. It is said that the contract price is the lowest ever made in the history of Chicago trade. There will be about 4000 tons of Beams and a large quantity of other shapes. The heavy demand for Angles and quick deliveries have caused another advance. Quotations are as follows, f.o.b. Chicago: Angles, 2.25¢ @ 2.35¢; Universal Plates, 2.20¢ @ 2.30¢; Sheared Plates, 2.25¢; Tees, 2.55¢; Beams and Channels, 2.90¢. From store: Angles 2.40¢; Tees, 2.65¢ @ 2.70¢; Beams, 3.40¢.

Plates, Tubes, &c.—It is almost impossible to place an order with mills for any kind of Plates for delivery within 30 days. Jobbers' trade from stock is very brisk, and prices are being well maintained on the whole line. Tubes are in excellent demand; stocks light. Quotations are as follows, from store: Iron Sheets, Nos. 10 to 14, 2.60¢ @ 2.70¢; Steel, Nos. 10 to 14, 2.75¢ @ 2.80¢; Tank, Steel and Iron, 2.50¢ @ 2.60¢; Steel Plates, Shell, 3¢; Flange, 3.50¢; Fire-Box, 4.25¢; Otis, 5.50¢; Ulster Iron, 3.75¢; Boiler-Rivets, 4¢ @ 4.25¢; Boiler-Tubes, 52 1/2 % discount on 1 1/2-inch and less and 57 1/2 % discount on 2-inch and larger.

Sheet-Iron.—Trade is quite active and prices very firm at the following quotations from store: No. 24, 3.10¢; Nos. 25 and 26, 3.20¢; No. 27, 3.30¢. Mills are overrun with orders, not accepting any contracts for immediate delivery, and adhering to a 3¢ basis on No. 27 at mill.

Galvanized Iron.—Conditions of the market are unchanged, with the exception that jobbers' stocks are rapidly diminishing, and they are already experiencing difficulty in keeping up the supply of leading numbers. From store they continue to quote 65 % off on Juniata and 65 % and 5 % off on Charcoal. Manufacturers are still selling the cheaper grades of Iron at 70 % off on Juniata. To their credit it may be said that lately they have refused to make further concessions on immediate deliveries. It is predicted by the trade that the excellent demand will aid some of the manufacturers in making a little advance in their prices within the next 30 days.

Merchant Steel.—A great many small orders for the general line of Steel were placed last week. Several of the large buyers who have not yet placed their contracts were making inquiries, but have not furnished full specifications. The market is reported steady at the following quotations by manufacturers, f.o.b. Chicago: Open-Hearth Machinery Steel, 2.15¢; Tire Steel, 2.25¢; Toe Calk, 2.30¢ @ 2.50¢, flat; Spring Steel, 2.25¢; Soft Steel Bars, 2¢; Plow Stock, Open-Hearth, 2.50¢; Crucible, 3.50¢. Jobbers quote from store: Mild Machinery, 2 10¢ @ 2.30¢; Tool, 7.75¢ @ 8.50¢; Crucible Spring, 2.50¢; Open-Hearth Machinery, 2.40¢ @ 2.60¢; Sheet, 7¢ @ 10¢; Tire, 2.30¢.

Steel Rails.—There were not quite so many new orders for heavy sections last week, but the demand for light weights, both in Iron and Steel Rails, has increased. The mills here continue to quote \$29 @ \$30 and say they cannot take additional orders for large quantities for delivery before late fall. Light sections are quoted at \$33 @ \$34 on 30 lb and \$38 @ \$40 on

12 lb and 20 lb. Light Iron Rails are quoted at \$36 in carload lots and upward.

Track Supplies.—The demand for this class of material is improving. In 50 and 100 ton lots the orders placed last week were quite numerous. Prices are stiffening and the following quotations are said to be closely adhered to: Steel Splice-Bars, 1.85¢ @ 1.90¢; Iron Splice-Bars, 1.75¢ @ 1.80¢; Spikes, 1.87½¢ @ 1.90¢; Bolts, Square Nuts, 2.50¢ @ 2.55¢; Hexagon, 2.60¢ @ 2.70¢.

Old Rails and Wheels.—Several lots of Iron Rails were offered last week at \$22 and one lot of 1000 tons at \$21.75. Buyers still refuse to meet this price. It is probable that \$21.25 @ \$21.50 would be paid by consumers, but holders are unwilling to make further concessions. Fifty tons of Steel Rails were sold at \$21.25, gross ton. Old Steel Rails, long lengths, are quoted at \$18; short lengths at \$14. Consumers have been offering \$17.75 @ \$18 for Old Wheels. Sellers are asking \$18.50. Some sales of small lots were effected at about the prices offered.

Scrap-Iron.—Inquiries are quite fair, but there is no heavy buying of the general line of Scrap. One sale of 1000 tons of Muck Iron is reported at about the same price that was ruling in the early part of June. Dealers' quotations are as follows: ½ ton of 2000 lb: No. 1 Forge, \$18; No. 1 Mill, \$14; Car-Axles, \$22.50, net ton; Horseshoes, \$18.50; Wrought Turnings, \$11; Axle Turnings, \$13; Cast Borings, \$8.25; Cast Machinery, \$11.50; Leaf Steel, \$14.50; Coil Steel, \$13.50; Locomotive Tires, \$15.50; Mixed Wrought, \$12 @ \$13.

Hardware.—Gentlemen engaged in the leading Hardware jobbing houses of this city are lamenting over curtailed and omitted vacations. July, the month that usually afforded "lay-offs" and recreation, is nearing the end and business has held many an unwilling man to his desk, and spoiled lots of fishing exploits that have been an annual occurrence. The duller period of the year has not been dull. The average for the month is far ahead of the record. Trade generally begins to brisk up in August, and the forerunners of a busy season are beginning to make their appearance in every mail. Prices are quite steady and firm.

Nails.—The market is somewhat disturbed over the adoption by the manufacturers of a resolution reducing the weight of Cut Nails to the same standard as Wire Nails. Their action does not meet with united approval. Some of the leading jobbers believe that it will still further demoralize trade by increasing rivalry between makers of Wire and Cut Nails. In small lots trade is very good for the season. Manufacturers continue to ask \$1.70 rates at mill on Cut Nails and \$2.25 on Wire Nails, f.o.b. Chicago. Jobbers quote \$1.85 for Cut Nails and \$2.30 for Wire Nails in carload lots and \$1.90 and \$2.35 in small lots from store.

Barb Wire.—There is no change in conditions or prices. Jobbers quote Painted at 2.75¢ and Galvanized at 3.35¢, in small lots.

Pig Lead.—In the early part of the week the market was very quiet. Toward the close more activity ensued, and sales of some 400 tons are reported for future delivery. Prices range from 3.80¢ to 3.85¢.

Philadelphia.

Office of The Iron Age, 220 South Fourth St., PHILADELPHIA, Pa., July 30, 1889.

Pig-Iron.—The market has been strong during the entire week, but without any perceptible change in prices. The demand is increasing, however, and it seems some-

what probable that the inside quotations will have to be dropped in our next weekly report. There is very little Iron to be had to-day at either \$15, \$16 or \$17, but some buyers claim to get all they want at these figures. Really good Irons however, command from 50 cents to \$1 more money, and the supply even then is somewhat restricted. The fact of the matter is that consumption has been enormous, and seems like being larger than ever during the balance of the year. There is no other way of accounting for the scarcity. The 563,286 tons of stock on hand (*vide* Mr. Swank) is not so large as it seems when our increased consumption is taken into account. The same authority shows that consumption is at the rate of 7,700,000 tons per annum, so that there is less than a month's supply on hand, which is certainly a small enough margin. Capacity for production is sufficiently large to secure the country against an Iron famine, but at the moment there is more danger of scarcity than there is of over-supply. Of course this report has to deal with things as they are from week to week, and in fulfilling that object it is safe to say that desirable brands of Iron at current quotations are scarcer to-day than they have been for a year, or probably for two or three years. The position may seem different three or four weeks hence, but consumers have no doubt in regard to to-day's market; therefore we repeat that good Irons are scarce, and with such prospects of consumption as are now before us the chances are that the meagerness of supplies will result in still higher prices during August than those ruling during the preceding month. Sales reported during the week have been at prices varying from \$17 to \$18, delivered, for No. 1 Foundry; \$16 to \$17 for No. 2 and \$15 to \$15.50 for Gray Forge. The inside figures are exceptional, the bulk of the business having been done at medium or outside prices, with a continued tendency toward higher figures for strictly desirable Irons. Southern Iron is not offered to any extent, and in any case sellers want more money for their Iron, say \$14.75 @ \$15, ex-ship, for Gray Forge, \$16 for No. 2 and \$16.50 @ \$17 for No. 1, but it is claimed that other markets offer better inducements, so that there is no effort made to sell.

Blooms.—Prices are still very irregular, but such mills as are in a position to quote name the following figures: \$28.50 @ \$29, delivered, for Nail Slabs; \$30 @ \$31 for Tank Slabs; \$32.50 @ \$33.50 for Shell Slabs; \$36 @ \$37 for Flange, and \$38 @ \$40 for Fire-Box; Charcoal Blooms, \$52 @ \$54; Runout Anthracite, \$41.50 @ \$42.50; Scrap Blooms, \$32 @ \$33 ½ "Bloom" ton of 2464 lb.

Muck-Bars.—The demand has again been very active and prices firmly maintained, and in some cases advanced a trifle. Sales have been chiefly on the basis of \$28.75 @ \$29.25, delivered, or \$28 @ \$28.50, at mill, according to circumstances.

Bar-Iron.—Business in this branch shows steady improvement. Mills are almost without exception full of orders, so that better prices are required on anything additional. Quotations are, of course, very varied—quality, quantity, delivery and specification of sizes making a difference of from ½¢ to ¾¢. In ordinary cases 1.80¢ @ 1.90¢ may be regarded as a fair average of the market for Refined Iron, but Old Rail Iron can be had at 1.70¢ @ 1.75¢. Orders for Refined Iron were placed last week at 1.80¢, but the feeling is decidedly stronger, and it is doubtful if such transactions could be duplicated to-day. It is reported that some extensive orders for cars are about being given out, so that the outlook for the Bar trade is of a most encouraging character. Skelp orders could be had at 1.80¢ for

Grooved or 1.95¢ for Sheared, but mills have so much work ahead that they want more money, say 1.85¢ and 2.10¢, with a fair probability of realizing that for such orders as require to be placed immediately.

Plates.—The market was somewhat dull during last week, but within a day or two the demand has been more active and prices correspondingly firm. There are quite a number of orders in sight, and prospects are again favorable to the selling interest. Small lots continue to be in good demand, and mills are all running to their fullest capacity. Prices during the week were shaded about ½¢ by mills that were waiting for specifications and wanted work to go on with, but they are all asking full prices to-day, and would not be likely to make concessions except under conditions similar to those named above. Quotations about as follows: 2.1¢ @ 2.2¢, delivered, for Ordinary Plates and Tank Plates; 2.10¢ @ 2.25¢ for Universal Plates; Shell, 2.4¢ @ 2.5¢; Flange, 3.25¢; Fire-Box, 3.7¢ @ 4¢; Steel Plates, Tank and Ship Plate, 2.2¢ @ 2.30¢; Shell, 2.5¢ @ 2.7¢; Flange, 2¼¢ @ 3¢; Fire-Box, 3½¢ @ 4¢.

Structural Material.—The demand is still very heavy, and mills are crowded with work. The outlook indicates continued activity during the balance of the year, so that prices are firmly maintained as follows: Bridge Plate, 2.10¢ @ 2.15¢; Angles, 2.10¢ @ 2.20¢; Tees, 2.6¢ @ 2.7¢; Beams and Channels, 2.8¢ for Iron or Steel, all delivered at Philadelphia or its equivalent.

Sheet-Iron.—The demand is very active and prices firm, with indications of higher figures in the near future. Prices for carload lots about as follows:

Best Refined, Nos. 14 to 20.....	3¢
Best Refined, Nos. 21 to 24.....	3.20¢
Best Refined, Nos. 25 to 26.....	3.40¢
Best Refined, No. 27.....	3.50¢
Best Refined, No. 28.....	3.60¢
Common, ¼¢ less than the above.	
Best Soft Steel, Nos. 14 to 20.....	3¼¢
Best Soft Steel, Nos. 21 to 24.....	3½¢
Best Soft Steel, Nos. 25 to 26.....	3¾¢
Best Soft Steel, No. 27.....	4¢
Best Bloom Sheets, ¼¢ extra over the above prices.	
Best Bloom, Galvanized, discount.....	.65 %
Common, discount.....	.67½ %

Steel Rails.—There is not much business to report in this market, but prices are strong at from \$28 to \$28.50 at mill. It is understood that all the mills are well supplied with orders, and it is believed that a decided upward movement would immediately follow any important increase in the demand for Rails. Bessemer Pig and Spiegel are advancing steadily, and Rails must follow the lead of the raw material.

Old Rails.—There are so few Rails here that practically there is no market. Sales from interior points are being made at from \$23 to \$23.50, delivered in consumers' yards, while quotations on the sea-board are nominally \$22.50 @ \$23; some in store held for still higher prices.

Scrap-Iron.—Prices do not seem to change, but there is a very good demand and desirable lots are very quickly taken at about the following quotations: \$20.50 @ \$21.50 for cargo lots; \$21 @ \$21.50 for carload lots, delivered, or for choice, \$22; No. 2 do., \$14 @ \$15; Turnings, \$14 @ \$15; Old Steel Rails, \$16.50 @ \$17.50; Cast Scrap, \$15 @ \$16; do. Borings, \$9 @ \$10; Old Fish-Plates, \$23 @ \$24; Old Car-Wheels, nominal, \$17 @ \$18, Philadelphia.

Wrought-Iron Pipe.—The demand is all that can be desired, and prices are held with absolute firmness. Discounts quoted as follows: Butt-Welded Black, 50 %; Lap-Welded Black, 62½ %; Butt-Welded Galvanized, 42½ %; Lap-Welded Galvanized, 50 %; Boiler Tubes, 52½ % @ 57½ %, according to size.

Nails.—The market has not fulfilled the hopes of the trade as expected last week. Some lots have been pressed for sale to realize cash, so that but little headway has been made by makers of standard brands. Sales in carload lots are said to have been made at as low figure as \$1.75, but, as already stated, standard brands could not be had for less than \$1.85 @ \$1.90 for carload lots and \$2 for lots from store.

Cleveland.

CLEVELAND, July 29, 1889.

Iron Ore.—Over 150,000 tons of Ore have been sold during the past week. Furnace men seem well satisfied with the market in its present condition. Lake freights appear to be stationary for the season, and there now exists no reason for believing that any changes of consequence in quotations will occur. Many dealers think that the sales for the year already aggregate 5,000,000 tons, and there is little question of their exceeding 6,250,000 tons before navigation closes. Several grades of Gogebic Bessemer can still be had for \$4.50 $\frac{1}{2}$ ton, but the better qualities bring \$4.75 @ \$5, and the output of one or two mines \$5.15. Past week's sales have almost exhausted the supply of Non-Bessemer Ore, several 10,000-ton blocks having been sold at \$3.75 @ \$3.90, except for Non-Bessemer Speculars, for which \$4.50 @ \$5 was paid. Bessemer Hematites, at \$4.75 @ \$5, have been in good demand, and liberal quantities of Menominee Ores at \$4.75 have been sold. The resumption of business in the Conemaugh Valley and the improvement in the situation at the Carnegie furnaces are both important factors in the present active condition of the market. The receipts at lower lake ports to date exceed 3,150,000 tons, as compared with 1,750,000 tons sent forward from the mines at a corresponding period last year. The following quotations fully represent the condition of the market:

No. 1 Specular and Magnetic Bessemer Ores, Bessemer quality.....	\$5.75 @ \$6.25
No. 1 Specular and Magnetic Ores, Non-Bessemer quality.....	4.50 @ 5.00
Red Hematite, Bessemer Ores, Bessemer quality.....	4.75 @ 5.00
Red Hematite Ores, Non-Bessemer quality.....	3.00 @ 4.00
Menominee Range Ores, Bessemer quality.....	4.50 @ 5.00
Menominee Range Ores, Non-Bessemer quality.....	3.00 @ 4.00
Gogebic Range Ores, Bessemer quality.....	4.50 @ 5.15

Pig-Iron.—The market continues to improve in every way. Sales are heavier than for several months past, and prices for both mill and Bessemer Irons have gone up a point or two. Dealers disclaim any intention of forcing up quotations, but insist that better prices for their product are coming as a natural result of the general reaction from the long depression. Quotations are as follows:

Nos. 1 to 6 Lake Superior Charcoal.....	\$20.00 @ \$20.50
No. 1 Strong Foundry, Bessemer quality, $\frac{1}{2}$ ton.....	16.50 @ 17.50
No. 1 Strong Foundry, $\frac{1}{2}$ ton.....	16.00 @ 16.60
No. 2 Strong Foundry, $\frac{1}{2}$ ton.....	15.00 @ 15.60
No. 1 American Scotch, $\frac{1}{2}$ ton.....	16.00 @ 17.00
No. 2 American Scotch, $\frac{1}{2}$ ton.....	15.00 @ 16.00
No. 1 Soft Silvery, $\frac{1}{2}$ ton.....	16.50 @ 17.50
Mahoning and Shenango Valley Neutral Mill Irons, $\frac{1}{2}$ ton.....	14.50 @ 15.00
Mahoning and Shenango Valley Red Short Mills, $\frac{1}{2}$ ton.....	15.00 @ 15.50

Old Material.—The market is fairly active, and Old American Rails are selling quite freely at \$21.50 @ \$22. Old Wheels are also in fair demand at \$19 @ \$19.50.

Detroit.

WILLIAM F. JARVIS & Co., under date of July 29, 1889, say: There is little change in the market since our report of a week ago. Considerable buying has been done, especially of Lake Superior Charcoal, but the majority of sales have been for small quantities. Several fur-

naces, of both Coke and Charcoal, have advanced quotations, thereby practically withdrawing from the market, most of them being entirely sold up for the next 60 days and not desiring to sell for longer deliveries at prices some furnaces will accept. With a steady and firm market we repeat quotations of last week:

Lake Superior Charcoal, all numbers.....	\$19.00 @ \$19.50
Lake Superior Coke, all ore.....	18.00 @ 18.50
Lake Superior Coke, cinder mixed.....	17.50 @ 18.00
Standard Ohio Black Band.....	17.50 @ 18.50
Southern No. 1.....	16.50 @ 17.00
Southern Gray Forge.....	15.00 @ 15.50
Southern Silvery.....	16.00 @ 16.50
Jackson County (Ohio) Silvery.....	18.00 @ 18.50
Old Wheels.....	18.00 @ 19.00

Cincinnati.

Office of The Iron Age, Fourth and Main Sts., CINCINNATI, July 29, 1889.

Pig-Iron.—There has been a further strengthening of the local Pig-Iron market during the week under review, and the higher prices obtained have been accompanied by larger sales. The statistical position has been improved by the development of the fact that stocks at the furnaces decreased about 20,000 tons during June, or about 5 per cent. The demand has embraced all kinds of Iron, but Forge grades have been relatively stronger than Foundry, the former being better sold ahead. There has been a fair demand for Car-Wheel brands, both Southern and Northern make, and in the aggregate, sales have been considerable, but there have been no individual sales of large amounts. Prices of both Forge and Foundry Iron have advanced 25¢ @ 50¢ $\frac{1}{2}$ ton, but the advance is being contested by consumers, and the question of deliveries continues to divide sellers from buyers in not a few instances. Of all grades Gray Forge has been the most active, 4500 tons Southern selling at \$13.50, cash, and 1000 tons do. at \$13.50 for August, September, October and November delivery. Mottled Iron has sold more readily at \$12.75, 1000 tons selling at this rate, but mainly in small amounts. White Iron has improved, selling at \$12.50, spot, cash. No. 1 Southern Coke Foundry has been sold mainly at \$15.25, and 500 tons No. 2 do. sold at \$14.50, spot. The following are approximate prices current here at the close for cash, f.o.b.:

Foundry.	
Southern Coke, No. 1.....	\$15.25 @ \$15.50
Southern Coke, No. 2.....	14.50 @ 14.75
Southern Coke, No. 3.....	13.50 @ 13.75
Ohio Soft Stone Coal, No. 1.....	16.00 @ 16.50
Ohio Soft Stone Coal, No. 2.....	15.00 @ 15.50
Mahoning and Shenango Valley.....	16.00 @ 16.50
Hanging Rock Charcoal, No. 1.....	20.00 @ 22.00
Hanging Rock Charcoal, No. 2.....	19.00 @ 21.50
Tennessee and Alabama Charcoal, No. 1.....	17.50 @ 18.50
Tennessee and Alabama Charcoal, No. 2.....	16.50 @ 17.50
Forge.	
Strong Neutral Coke.....	13.25 @ 13.50
Mottled Neutral Coke.....	12.25 @ 12.75
Gray Forge.....	12.00 @ 13.50

Car-Wheel and Malleable Irons.	
Southern Car-Wheel.....	23.00 @ 24.00
Hanging Rock, Cold Blast.....	22.00 @ 25.00
Lake Superior Car-Wheel and Malleable.....	20.00 @ 20.50

Manufactured Iron.—An improved feeling has prevailed, based upon larger orders and a better inquiry, assisted by the advance in Pig-Iron, but the range of prices is without quotable change.

Old Materials.—There has continued to be quite an active inquiry for Old Rails and under moderate offerings prices have advanced from \$21.50 to \$22 for present delivery. Old Wheels, too, have been in better demand and stronger, holders asking \$18, cash, here or at near-by points.

Nails.—There has continued to be a fair demand in a jobbing way, and a steady market. Iron and Steel Nails, 12d to 40d, sell at \$1.85 @ \$1.90 per keg, with 10¢ rebate in carload lots, at the mills. Steel Wire Nails sell at \$2.40 for 60d.

Louisville.

LOUISVILLE, KY., July 29, 1889.

Pig-Iron.—The market has been steady during the past week, with no disposition to shade prices, and considerable buying has taken place at the full market quotations. Notwithstanding the large output, the demand for actual consumption continues to take all the Iron offered and there has been a slight decrease in stocks. There is a large amount of business in sight and it is thought that prices for August will show a slight advance.

Southern Coke, No. 1 Foundry.....	\$14.75 @ \$15.25
Southern Coke, No. 2 Foundry.....	14.25 @ 14.75
Southern Coke, No. 3 Foundry.....	13.50 @ 14.00
Gray Forge.....	13.00 @ 13.50
White and Mottled, different grades.....	12.50 @ 13.00
Silver Gray, different grades.....	13.00 @ 13.50
Southern Charcoal, No. 1 Foundry.....	16.25 @ 16.75
" " " " No. 1 Mill.....	14.75 @ 15.25
Southern Car-Wheel, standard brands.....	21.75 @ 22.75
Southern Car-Wheel, other brands.....	18.00 @ 19.50
Hanging Rock Coke, No. 1 Foundry.....	15.50 @ 16.00
Hanging Rock Charcoal, No. 1 Foundry.....	19.50 @ 21.00
Hanging Rock, Cold Blast.....	20.75 @ 22.75

St. Louis.

OFFICE OF The Iron Age, 214 N. Sixth st., St. Louis, July 29, 1889.

Pig-Iron.—The improved condition of things, both as regards prices and volume of business, as noted in last week's report, continues. The pipe works and others of the same class who form what are known as the "heavy buyers," are pretty well stocked up just at the moment, but as they are all busily engaged they will soon be in the market for more Iron. With these orders being held in reserve, and calculating on a steady demand from general trade who buy from 200 to 500 ton lots, the furnaces have confidence in a gradually improving market and some further advance in prices, which are now quoted from 50¢ to 75¢ above those current one month since. A sale was made during the past week of 500 tons of No. 2 Southern Coke Iron at \$14.50, f.o.b. St. Louis, but we are advised that the parties filling the order refuse to sell any more at the same figure, and, in fact, withdrew their Iron from the market entirely, saying their books were filled with orders for three months ahead. An interview with a Pig-Iron agent in this city representing several well-known Southern furnaces, and who has just returned from a tour in that section, discloses the fact that nearly if not all the furnaces are working full, and while some are pretty well filled up with orders, there are others who, having more confidence in the market, have been slowly accumulating stock, and are prepared to take advantage of the increase in values, and are now placing some of this Iron on the market, and it is needless to add are receiving the advanced prices. For ordinary-sized lots we quote as follows for cash, f.o.b. St. Louis:

Southern Coke, No. 1 Foundry.....	\$15.50 @ \$16.00
Southern Coke, No. 2 Foundry.....	14.75 @ 15.50
Southern Coke, No. 3 Foundry.....	14.25 @ 14.75
Gray Forge.....	13.50 @ 14.00
Ohio Softeners.....	17.00 @ 19.00
Lake Superior Charcoal.....	20.00 @ 21.50

Missouri.	
Charcoal Foundry, No. 1.....	16.00 @ 16.50
Charcoal Foundry, No. 2.....	15.00 @ 15.50

Tennessee.	
Charcoal Foundry, No. 1.....	17.50 @ 18.00
Charcoal Foundry, No. 2.....	17.00 @ 17.50
Connellsville Coke, f.o.b. East St. Louis, \$4.40; St. Louis, \$4.55.	

Bar-Iron.—There seems to be no let up in the demand for Bars, and mills are consequently kept busily engaged and are pushed to make prompt shipments. Small lots from store are firm at from 1.8¢ to 1.85¢; carload lots from 1.62½¢ to 1.67½¢.

Barb-Wire.—There is absolutely nothing new in this department, as mills are

running only a few machines each to supply the small demand. Prices remain unchanged, and are quoted as follows: From 2.75¢ to 2.80¢ for Painted, and from 3.35¢ to 3.40¢ for Galvanized; carload lots at from 2.65¢ to 2.70¢ for Painted and 3.25¢ to 3.30¢ for Galvanized, f.o.b. St. Louis.

Chattanooga.

Office of *The Iron Age*, Carter and 9th Sts.,
CHATTANOOGA, July 29, 1889.

Pig-Iron.—The market appears to have settled down to a firm basis. The furnaces are mostly sold up for 60 to 90 days, and are filling in with small current orders at full prices, which keeps them in a satisfactory condition. The demand, the past month has been far in excess of their capacity, but this demand has been, or at least a portion of it, the result of efforts on the part of speculators and large consumers to buy ahead under the impression that there would be a still further advance. A factor that has gone far to produce a steadiness of prices is the storage warehouse system, which for the last month or so has been brought into use, and several large amounts have been put in store. Prices have advanced as a general thing from what they were a month or six weeks ago about 75¢ to \$1 per ton, and what transactions occur are made on this basis. There is a large demand for all grades of Foundry Irons. No. 3 for pipe purposes, however, leads all the other grades, and some of the stacks are running especially with a view of producing this quality of Iron. Opinions differ as to future advance, some contending that prices will remain about as they are now, while others express an opinion very freely that we may before long look for another and strong advance from present rates.

Pittsburgh.

Office of *The Iron Age*, 77 Fourth Ave.,
PITTSBURGH, July 30, 1889.

The general Iron and Steel business continues to improve, and the outlook indicates that there will continue to be an active and healthy trade during the remainder of the year.

Pig-Iron.—We have to report an active and strong market, with buyers more numerous than sellers, and prices further advanced. Brokers say it is difficult to find furnace men who are in condition or willing to sell; many are already sold from 30 to 90 days ahead, and the few that are not are holding back in expectation of still better prices. A couple of months ago it was the other way; brokers had the Iron to sell, but buyers refused to buy beyond their immediate requirements. Some consumers hit it pretty well, having contracted freely at \$13.75 @ \$14, cash, but others have now to buy at the advance. We now quote prices as follows:

Gray Forge Neutral.....	\$14.25 @ \$14.50,	cash
All-Ore Mill.....	15.00 @ 15.50,	"
White and Mottled.....	13.50 @ 14.00,	"
No. 1 Foundry.....	16.00 @ 16.50,	"
No. 2 Foundry.....	15.00 @ 15.50,	"
No. 2 Charcoal Foundry.....	21.00 @ 21.50,	"
No. 1 Charcoal Foundry.....	22.50 @ 23.00,	"
Cold Blast Charcoal.....	24.00 @ 27.00,	"
Bessemer Iron.....	16.50 @ 16.75,	"

Several thousand tons of Gray Forge were reported at from \$14.15 to \$14.40, cash, mostly at \$14.25 @ \$14.30, cash, but the indications at present point to \$15, cash, before the close of August. A sale of 2500 tons Bessemer, to be delivered at the rate of 500 tons per month from August to December, was reported at \$16.75, cash, which is an advance of fully \$1 per ton as compared with the lowest point.

Muck-Bar.—The firmness noted in our last report continues and prices have further advanced. Sales reported during the week under review at \$27 @ \$27.50, cash, and it is doubtful whether contracts for delivery during the next 30 days would now be made under \$28.

Spiegel.—Sale of 1000 tons (foreign) at \$30.50, cash, for 20%. Ferromanganese is quoted at \$59.50 @ \$60 for 80%.

Manufactured Iron.—There is an increasing demand for all kinds of Manufactured Iron, and prices are considerably firmer. Both jobbers and large consumers are beginning to realize the situation and are buying a good deal more freely in consequence. While manufacturers are willing to sell for immediate delivery at present prices, they are not willing to contract ahead, excepting with the understanding that they are to get market price at the time of delivery, whatever that may be. We now quote Iron made from good Muck-Bar upon a basis of 1.70¢ @ 1.80¢ for Bars, 60 days, 2 per cent. off for cash, and Old-Rail Iron at 1.50¢ @ 1.60¢. Skelp Iron is also firmer, with a continued good demand, but we make no change in our quotations, 1.62½¢ @ 1.65¢ for Grooved and 1.95¢ for Sheared.

Nails.—There is a considerably increased demand for Cut Nails and the market is considerably stronger, in sympathy with the materially increased price of Nail Slabs, which within a few weeks have gone up from \$1 to \$1.50 per ton. Pittsburgh manufacturers still quote at \$1.90, 60 days, 2% for immediate or nearby delivery, but they will contract for future delivery at the price quoted. It is claimed that at the present price of Slabs Nails ought to be 10¢ @ 15¢ per keg higher and the general opinion is that prices will have to be advanced before long. Wire Nails are still reported slow, and while they remain unchanged at \$2.25, 60 days, 2% off for cash, it is alleged that they can be bought at \$2.15, and a broker here reports that he can sell them at the price quoted and realize a brokerage. The new Cut-Nail card will be reported to an adjourned meeting of the Western Nail Association this week.

Wrought-Iron Pipe.—There is a continued good demand for Pipe, and the advance made at the July meeting of the association is being faithfully adhered to. An order for 15 miles of Pipe was placed here during the week under review, and the mills are all as busy as they can be. A further advance at the next monthly meeting of the association is not improbable. Discounts on Black Butt-Welded Pipe, 50%: on Galvanized do., 42½%; on Black Lap-Welded, 62½%; on Galvanized do., 50%; Boiler-Tubes, 1½-inch and smaller, 52½%; 2-inch and larger, 57½%; 5½ Casing, 60% off.

Old Rails.—The offerings continue light and with considerable inquiry the market is firm and tending upward. The only sale reported was a lot of 1000 tons at \$24, which is an advance of \$2 per ton as compared with the lowest point. Old Steel Rails are also in demand and firmer. We now quote at \$17 @ \$17.50 for short and \$20 @ \$20.50 for long pieces.

Steel Rails.—Heavy Sections are still quoted at \$28, cash, at mill, for fall delivery. Mills here are well sold up and not in condition to book contracts for immediate delivery, and the market is stronger for immediate and future delivery in consequence.

Billets, Blooms, &c.—There is considerable inquiry for Bessemer-Steel Billets and Blooms, with the mills all oversold, and prices are strong and higher. We now quote at \$27.50 @ \$28. A sale of 300 tons Sheet Blooms reported at \$29; Nail Slabs are quoted at \$27.50 @ \$27.75. A broker who had an order for 1200 tons Billets says he was unable to find a mill in this district that could take it; they are all oversold. Rail Crops scarce and higher, with sales reported at \$18.25 @ \$18.50; Bloom Ends quoted at \$17.50 @ \$18.

Railway - Track Supplies.—Everything in this line is firmer and higher. Spikes are still quoted at 1.95¢, 30 days, delivered on cars at works. Splice-Bars are quoted at 1.70¢ @ 1.80¢ and Track-Bolts at 2.75¢ with square and 2.85¢ with hexagon Nuts.

Old Material.—There is an improved demand for all kinds of Old Material and prices are firm and tending upward. Sales of No. 1 Wrought Scrap at \$20, net ton; No. 1 Wrought Turnings quoted at \$13 @ \$14; Old Car-Axles, \$24 @ \$25; Cast Scrap, \$14.50 @ \$15, gross; Cast Borings, \$11.50 @ \$12.50; Old Car-Wheels, \$18; Mixed Scrap-Steel, \$16 @ \$17.

New York.

Office of *The Iron Age*, 65 and 68 Duane street,
NEW YORK, July 31, 1889.

A very notable change characterizes the condition of affairs in the Iron trade at present as compared with but a few months since. Consumers are now pushing the manufacturers and urging them to anticipate deliveries, instead of requesting shipments deferred. New business is a little quiet at the moment, but this is usual during the month of July, when hot weather, vacations and other influences have a modifying influence on trade. The prospect is bright for an early resumption of activity, a good volume of inquiries being reported in almost every branch.

Pig-Iron.—Comparatively little business was placed during the past week, but dealers have been receiving a great many inquiries, some of them calling for considerable quantities. Consumers who had apparently covered their requirements are rapidly absorbing the Iron they had ordered, and renewed contracts are expected soon from heavy consumers. In some cases a little timidity is manifested among buyers, who would probably purchase Iron if they felt sure that there was no danger of a reaction. The possibility of a decline is very remote, however, as no pressure to sell is manifested from any source. The Southern manufacturers of Pig-Iron are directing their agents to consult with them before securing contracts. Sellers of Iron have themselves no apprehension of a decline in the near future, but believe that prices will be at least firmly maintained at present quotations, which are as follows: No. 1 Anthracite Foundry, at tide-water, \$17 @ \$18; No. 2, \$16 @ \$17; Gray Forge, \$15.25 @ \$15.75; Southern No. 1 Coke Foundry, delivered at New York, \$16.50 @ \$17.50; No. 2, \$15.75 @ \$16; No. 3, 15.50; Gray Forge, \$15.

Scotch-Pig.—Prices are still advancing in Scotland. Cable reports represent the market as not only firm but excited. Freights are also higher. Quotations here remain the same as last week, with more inquiries from buyers, but very little business has been done, prices being too high compared with the domestic product. Good Soft Irons from Ohio are laid down here at \$19 per ton, while quotations for Scotch are as follows: Eglinton, \$19 @ \$19.50; Dalmellington, \$19.50 @ \$20; Langloan, \$21; Summerlee and Coltness, \$21.50.

Spiegeleisen.—Heavy transactions are reported to have taken place during the past week, but quantities and prices have not been disclosed except in a few cases. One lot of 1000 tons of 20% was sold at a trifle over \$28, c.i.f. While this price may have prevailed in a few transactions, it is hardly possible that many buyers were so fortunate, as the situation of affairs abroad is such as to compel importers to ask \$29 @ \$29.50. Quotations just now are fluctuating very widely, and importers are wholly at sea in endeavoring to conduct negotiations, makers insisting upon higher

ates and buyers vigorously resisting the advance. This class of material is undoubtedly getting scarce both in England and on the Continent. For 80 % Ferro \$60 is asked.

Finished Iron and Steel.—The heaviest business recently transpiring has been in locomotives, contracts having been placed for about 100, which will be manufactured in works drawing supplies through this market. They will consume at least 6500 tons of Iron and Steel. This is in addition to the regular demand from all classes of consumers, which continues excellent for Plates, Shapes and Bars. In general work the outside shops are possibly more busily engaged than those in the city and its immediate vicinity, causing the country trade to be heaviest at present. We quote as follows for delivery on dock: Sheared Plates, 2.10¢ @ 2.15¢; Universal Mill Plates, 2.15¢ & 2.20¢; Angles, 2.10¢ @ 2.15¢; Tees, 2.5¢ @ 2.6¢; Beams and Channels, 2.8¢. Tank Iron, 2.10¢ @ 2.20¢; Shell, 2.4¢ @ 2.5¢; Steel Tank, 2.3¢; Shell, 2.5¢; Flange, 2.75¢ @ 2.8¢; Fire-Box, 3.25¢ @ 4¢; Common Bar-Iron, 1.6¢ @ 1.65¢; Medium, 1.7¢; Refined, 1.8¢ @ 2¢. Sellers at inside quotations are constantly diminishing in number.

Merchant Steel.—Business is moving along in about its usual volume, with no special changes in prices, which are as follows: Tool Steel, good brands, in large lots, 7¢ @ 7½; specials, 12¢ @ 20¢; Crucible Spring, 3½¢ @ 4¢; good Open-Hearth Machinery, 2.30¢ @ 2½¢; Bessemer ditto, 2¢ @ 2½¢; Open Hearth Spring, 2½¢ @ 2½¢; Tire 2.15¢; Toe-Calk, 2½¢; Sheet, 6½¢, 8½¢ and 10½¢.

Steel Rails.—Plenty of inquiries are reported for August and September delivery, but the mills are so full of orders for those months that they are unable to take further contracts. Railroads are beginning to make inquiries for delivery next year, but manufacturers hesitate about making prices so far ahead. The quotation for October delivery is \$28, firm, at mill, but for November and December it is likely that good orders could be placed at \$27.50, which, however, by no means fixes the price for next year. All the mills expect then to get a considerably higher price if the present bright prospects continue.

Track Supplies.—Trade is moving along moderately, but no heavy contracts have recently been placed. Quotations are as follows: Iron Fish Plates, 1.80¢ at mill; Steel Fish Plates, 1.75¢; Square-Nut Bolts, 2.70¢; Hexagon-Nut Bolts, 2.80¢ and 3¢, according to quality, and Spikes, 1.95¢ and 2¢.

Old Material.—Sales of small quantities of Old Iron Rails have been made at a shade under \$23, on cars Jersey City. Old Steel Rails are quoted at about \$19.50, delivered at consumers' works. Old Car Wheels are unchanged at \$19 @ \$20; No. 1 Wrought Scrap is quiet, but held at \$21.

Financial.

During the week under review the initial steps have been taken for the inauguration of the great world's fair to be held in this city in 1892, and the beginning is most auspicious. Leading business men in all departments of enterprise are fully committed in approbation of the scheme. Another event is the signal failure of the proposed great Anglo-American salt combination, which was severely let alone. A favorable indication is the foreign buying of wheat in prospect of bad harvests in Russia and Hungary. Ocean steamers are getting better freight rates, and extensive engagements have been made for flour and grain, August

loading. Corn, too, is moving out freely from farmers' hands, and the east-bound movement of freight from Chicago is in larger volume. In the Northwest the wheat crop is being harvested over a large section. In Southern Minnesota and South Dakota the harvest is general, and in some sections is nearly over, with a portion of the grain in the shock. Reports from all parts of the Northwest are fully as favorable as those of a week ago. A good half crop for South Dakota and an average for Minnesota are apparently not far out of the way. The glowing accounts from California are in no degree abated.

The Stock-Exchange markets are stagnant pending the settlement of controversies among railroad managers. One important feature was the announcement that the Vanderbilts were seeking to obtain a controlling interest in the Chesapeake and Ohio, influencing a rise in the stocks of both companies. The failure of Lewis Bros., dry goods, with liabilities supposed to exceed \$4,000,000, had a partially unfavorable influence on the speculation on Thursday. The market was irregular and generally lower on Friday afternoon, but it was steadier on Saturday. On Monday the only news related to the conference of managers of the transcontinental lines, without definite results. On Tuesday the feature was a further advance in the Chesapeake and Ohio and subsequently in the Northern Pacific. Then a dispatch from Boston announced the failure of the shoe firm of E. & A. H. Batcheller & Co., with liabilities placed at \$1,250,000, upon which the bears attacked New England and Atchison, Topeka and Santa Fé, and gradually the whole market yielded to the pressure of speculative sales. Early in the afternoon there was a partial recovery. Ex-President Gowen, of the Reading, was quoted as saying that the alleged claim of the Robert Morris Company to large coal tracts operated by the Reading had no foundation whatever.

United States bonds are quoted as follows:

U. S. 4½s, 1891, registered.....	100½
U. S. 4½s, 1891, coupon.....	106½
U. S. 4s, 1907, registered.....	128½
U. S. 4s, 1907, coupon.....	128½
U. S. currency 6s.....	118

The weekly bank statement showed a small decrease in the surplus reserve, which now stands at \$7,086,635. In loans there was a contraction of \$2,595,100. Deposits showed a decrease of \$5,318,600. Specie decreased \$2,118,000 and legal tenders increased \$622,600. The decrease in deposits excited various conjectures, but was supposed to have some connection with the recent drain of gold to Europe. According to the Custom-House report the exports of specie for the week were \$885,544, making a total of \$57,621,000 since January 1. The banks and trust companies advanced their rates for call money to 4 % on account of the reduced bank reserves, and in time loans collateralized were more closely scrutinized, partly by reason of the heavy failure in the dry goods trade. Trust collateralized as a rule are not accepted by local lenders. Commercial paper is in good request from out of town, but rates remain at 4½ @ 5 % for 60 to 90 day indorsed bills receivable.

Respecting railroad troubles, Chairman Walker, of the Interstate Commerce Association, says: "Association among carriers is required by sound public policy. The breaking down of the present effort among carriers to conduct their traffic by associations subordinated to the law would inevitably produce one of these results: Either a state of chaos would follow, in which bankruptcy on the part of many lines would ensue, and a commercial panic necessarily be precipitated, with infinite loss throughout the entire country; or, second, it would be necessary for the State to intervene and assume the entire

control of railway management; or, third, a committee on ownership of railroad property might secure the harmony essential to maintain their operation in the public service."

An analysis of the Treasury statement indicates that Secretary Windom will be obliged to expend over \$100,000,000 in the purchase of bonds during the current fiscal year.

Returns from the leading clearing-houses of the United States for the week show an increase of 12.4 per cent. in the aggregate, and 12.6 per cent. outside of New York, compared with last year. In New York the gain was 12.2 per cent.

The statistics of foreign trade for the entire United States are at hand for the fiscal year ending June 30, showing a balance of trade in favor of this country equal to nearly \$65,000,000, as follows:

Exports.....	\$89,043,332
Imports.....	774,090,549
Balance.....	\$64,952,783

This is a much more favorable statement than was expected. For the previous fiscal year ending June 30, 1888, the imports were \$783,295,100 and the exports were \$742,368,690, leaving an adverse balance of \$40,926,410. The difference between the two years in favor of this country is over \$100,000,000. But this favorable balance for 1888-89 is owing to the large shipments of precious metals, which for the port of New York alone amounted to \$79,000,000. The foreign trade of New York for the year appears from the following summary, in which a comparison is made with the two years immediately preceding:

	Imports.		
	1887.	1888.	1889.
Dry goods....	\$118,196,655	\$126,238,972	\$129,876,699
General mde.	333,501,651	335,000,682	338,331,518
Sp. and bull'n.	41,238,214	39,841,658	7,274,618
Totals.....	\$492,936,520	\$501,081,312	\$475,482,835
	Exports.		
	1887.	1888.	1889.
Dom. produce.	\$306,833,412	\$301,462,156	\$310,922,166
For. free g'ds.	4,465,511	3,608,225	4,022,391
Do. dutiable	5,035,763	5,472,487	4,890,217
Sp. and bull'n.	18,160,146	31,269,763	79,166,337
Total exports.	\$334,494,832	\$341,872,631	\$398,941,111
Do. exclusive of specie....	316,334,686	310,602,868	319,774,774

The failure of E. & A. H. Batcheller & Co., shoe manufacturers, of Boston, was a surprise to the trade in this city, where they have been regarded as the largest manufacturers in the world, and estimated worth over \$1,000,000. The immediate causes are said to be losses outside of the business and difficulty in discounting commercial paper.

The nominal rates for sterling are now at the lowest point since October and November, 1888. Posted rates for both 60 days and sight bills were reduced ¼ ¢ per pound. Posted rates closed at 4.86 for 60 days and for demand.

Metal Market.

Copper.—At the time of our last week's report London stood £41, spot, and futures £40. 5/; the quotation last night was respectively £41. 5/ and £41. 10/, after some slight fluctuations, sales in the meantime footing up 550 tons. Matters have been kept in abeyance among us so far as the companies are concerned, and the price for Lake remains 12¢ to large consumers, who buy as little as possible, casting brands ranging between 10½¢ and 10¼¢, as the case may be. Messrs. James Lewis & Son, Liverpool, remark in their report of 16th inst.: "It is evident that some of the syndicate holding has been quietly and gradually realized, the deliveries of Bars having considerably exceeded the arrivals." The import of American Copper into Liverpool and Swansea from January 1 to July 16 has been 13,760 tons Fine, against 15,206 last year and 5376 in 1887. The

following was wired from Boston since our last report: "It is intimated by the Allouez Copper-mine people that their mine may suspend the production of Copper, as it costs just 12¢ $\frac{1}{2}$ lb to produce and market its Copper, and it cannot sell one-half of it at that price, which is the ruling quotation. Already one Lake Superior mine, the Copper Falls, has ceased producing, as there is no profit in a twelve-cents-per-pound market for it. Tamarack Mine's No. 2 shaft is expected to reach the lode by the end of August." A meeting of Lake companies is to come off without delay, and a great effort to be made to arrive at some firm agreement.

Tin.—Tin declined in the London market since our last week's report from £90. 5/, spot, to £89. 7/6, and futures from £90. 2/6 to £89. 5/, sales aggregating 630 tons. The weakness over there unsettled our own market, in which hardly anything transpired in the way of sales, 10 tons, spot, selling at 19.70¢, closing last night at 19.65¢, and October at 19.85¢. For 5-ton lots 19.85¢ is asked, and Tin is jobbing at 20¢ @ 20.10¢. The quotation for Spot Tin at New York this forenoon is 19 $\frac{1}{2}$ ¢ @ 19 $\frac{3}{4}$ ¢. The Banca sale in Holland averaged 53.62 $\frac{1}{2}$ guilders and the Billiton sale 53.50.

Tin-Plates.—An improved demand has been noticeable on the spot, to supply the West especially, where people seem inclined to stock up freely for the fall. The English market remains firmly sustained. We quote large lines, ordinary brands, $\frac{1}{2}$ box: Siemens-Martin Steel, Charcoal finish, \$4.75 @ \$5.50; Coke finish, \$4.60 @ \$4.65; Ternese, \$4.12 @ \$4.30; Coke Tins, \$4.22 $\frac{1}{2}$ @ \$4.32 $\frac{1}{2}$, and Wasters \$4.05 @ \$4.10.

Lead.—An active business, partially speculative, has been done; 1000 tons changed hands at 3.95¢, 3.97 $\frac{1}{2}$ ¢ and 4¢, the latter being the closing figures. St. Louis quotes 3.80¢, and Chicago 3.85¢.

Spelter.—Common Domestic Spelter cannot now be laid down in New York for less than 5.15¢; Ore is worth \$30 $\frac{1}{2}$ ton at the mines, and not abundant at that. English buyers have appeared in the Western Ore market, because of the scarcity in Europe, where the demand outruns the supply. Silesian is worth 6 $\frac{1}{2}$ ¢ here, having advanced to £19.17/6 in England. Some sanguine people on the Continent look forward to £23.

Antimony.—While the demand continues very good, the stock is merely nominal, and Cookson's commands 16 $\frac{1}{2}$ ¢, while Hallett's may be quoted at 15 $\frac{1}{2}$ ¢.

New York Metal Exchange

The following sales are reported:

TUESDAY, July 30.	
10 tons Tin, spot.....	19.70¢
WEDNESDAY, July 31.	
10 tons Tin, September.....	19.95¢
10 tons Tin, October.....	19.85¢
10 tons Tin, November.....	19.95¢

An auction sale of 30 and more delinquent membership certificates of the New York Metal Exchange took place on the 25th ult. The prices ranged from \$43 to \$53, only one seat reaching the higher figures. By the last annual report the invested property of the exchange amounted to \$55,538.52, with a membership of 336, making the average to each certificate holder \$165.30. It is said that while there are but few sales of metals at the exchange, it is kept open at an expense of \$11,000 a year.

Coal Market.

The Coal trade remains in the sluggish condition noted for some time past, with business confined chiefly to deliveries under orders received prior to the last advance, which few, if any, would claim

has been realized in actual sales. A meeting of sales agents was held in this city on Tuesday to consider the schedules for August, but no change was made. Report says that a leading company opposed the advance which others favored, so that an adjournment was made to August 14, at which time it is supposed that an advance of 10¢ @ 15¢ $\frac{1}{2}$ ton will be advocated.

Philadelphia papers refer to the decision of the Interstate Commission last week as applying to the Coal roads which make a lower rate for Coal shipped by sea to domestic ports, claiming that the proper way to compute a through ocean rate is to add the latter to the standard and known land rate, whether the destination is a foreign or domestic port.

It is stated that surveys are in progress for a railroad to connect Williamsport with Elmira, in the interest of the Reading Company, who aspire to obtain a direct route to Canada over the St. Lawrence River, probably at Brockville.

Two Coal-boats were sunk off Penfield Reef on Monday, one of them consigned to a Bridgeport firm, the other to New Haven.

Scranton is agitated by a report that an English syndicate is attempting to buy up all the Coal fields in the Lackawanna and Wyoming valleys.

Will the cokers and miners in the Connellsville region strike August 1 was, at last accounts, a vital question.

Cumberland Coal shipments for the week were 63,435 tons, and since January 1, 1,638,540 tons.

The Reading Anthracite shipments for the week ended July 27 were 183,501 tons, an increase of 36,482; for the fiscal year to date are 4,053,861 tons, an increase of 226,521.

Imports.

Hardware, Machinery, &c.

Boker, Hermann & Co., Mdse., cs., 38; Arms, cs., 6; Iron Chains, cks., 22
Curley, J. & Bro., Cutlery, cs., 4
Degrauw, Aymar & Co., Chains, cks., 7
Frasse, F. A., Mdse., cs., 2
Field, Alfred & Co., Mdse., cs., 12; Hdwr., cs., 23; Anvils, 45
Graef Cutlery Company, Cutlery, cs., 5
Kittredge Arms Company, Arms, cs., 3
Lau, J. H. & Co., Arms, cs., 12
Sanderson & Sons, Mach'y, cs., 8
Sheldon, G. W. & Co., Guns, cs., 22
Schoverling, Daly & Gales, Arms, cs., 6
Summer, C. P. & Co., Mach'y, cs., 20
Tryon, E. K., Jr., & Co., Arms, cs., 3
Van den Toorn, W. H., Arms, cs., 51
Ward, Jas. E. & Co., Mach'y, pkgs. and pes., 104
Werlemann, H., Arms, cs., 55
Wiebusch & Hilger, Lim., Mdse., cs., 52
Witte, John G. & Bro., Cutlery, cs., 8
Order, Mach'y, cs., 21

British Iron and Metal Markets.

[Special Cable Dispatch to The Iron Age.]

LONDON, WEDNESDAY, July 31, 1889.

Block-Tin has been irregular and unsettled. Large quantities have changed hands at prices close to £89 on the average. Free offers of futures by the "bear" party, while having a somewhat depressing effect, do not intimidate the chief holders. It is very probable that there will be a sharp struggle between the opposing parties during August. To-day the tone appears better.

Copper business has been of restricted volume. Cash warrants are still scarce and command a greater premium over three months futures, the offerings of which have increased materially. Sales have been made of three months prompt, seller's option to double, at £40. It is stated that the negotiations between the Tharsis Company officials and the liquidator of the old Comptoir D'Escompte are

likely to result in a satisfactory adjustment of matters under consideration.

In the Pig-Iron market there has been a large business, with both speculators and consumers buying freely. Stocks are decreasing steadily in the face of additions to the number of furnaces in blast. Nearly all brands of Scotch are higher, as are also Middlesborough Pig and Hematites.

Tin-Plate is quieter and buyers' limits are unsatisfactory to makers, whose ideas are not modified to the slightest degree.

Scotch Pig.—There has been a good business, with prices irregular but generally higher. Freights, Glasgow to New York, are higher.

No. 1 Coltness, f.o.b. Glasgow.....	57/6
No. 1 Summerlee, " ".....	57/6
No. 1 Gartsherrie, " ".....	55/6
No. 1 Langloan, " ".....	56/6
No. 1 Carnbroe, " ".....	48/6
No. 1 Shotts, " at Leith.....	55/6
No. 1 Glengarnock, " Ardrossan.....	53/
No. 1 Dalmeilington, " ".....	47/6
No. 1 Eglinton, " ".....	46/
Steamer freights, Glasgow to New York, 5/;	
Liverpool to New York, 10/.	

Cleveland Pig.—Business has been done at 1/ @ 1/6 rise, but sales are slower at the advance. No. 3 Middlesborough quoted 42/, prompt, by makers.

Bessemer Pig.—In this line there is still a brisk trade and prices are about 1/ up. West Coast brands, mixed numbers, 51/6, f.o.b. shipping point.

Spiegelisen.—There is a fairly active business, and the market is firm, with English 20 % quoted 80/, f.o.b. at N. W. England shipping point.

Steel Rails.—Makers ask 2/6 advance, and the demand continues brisk. Heavy sections quoted at £4. 17/6 and light sections £5 @ £5. 5/, f.o.b. at N. W. England shipping point.

Steel Blooms.—Demand is not so brisk, but prices remain firm. We quote £4. 7/6 for 7 x 7, f.o.b. at N. W. England shipping point.

Steel Billets.—A fairly active demand and very firm market. Bessemer, 2 $\frac{1}{2}$ x 2 $\frac{1}{2}$ inch, £4. 12/6, f.o.b. at N. W. England shipping point.

Steel Slabs.—Moderate sales making, but prices firm. Bessemer, £4. 15/, f.o.b. at N. W. England shipping point.

Old Rails.—There has been a fairly active business at modified prices. Tees quoted at £3. 2/6 and Double Heads £3. 12/6, c.i.f., New York.

Scrap-Iron.—The market steady and demand moderately active. Heavy Wrought quoted £2. 2/6 @ £2. 5/, f.o.b.

Crop Ends.—A fairly active and firm market for these. Bessemer quoted £2. 12/6 @ £2. 15/, f.o.b.

Tin-Plate.—Business rather slow and the market not so firm. We quote, f.o.b. Liverpool:

IC Charcoal, Alloway grade.....	15/3 @
IC Bessemer Steel, Coke finish.....	13/6 @
IC Siemens " ".....	13/9 @
IC Coke, B. V. grade.....	13/ @
Charcoal Terne, Dean grade.....	12/ @

Manufactured Iron.—There is a quite active trade at full prices. We quote, f. o. b. Liverpool:

	£ s. d.	£ s. d.
Staff, Marked Bars.....	@ 8 10 0	
Common ".....	@ 6 10 0	
Staff, Bl'k Sheet, singles.....	@ 8 5 0	
Welsh Bars (f.o.b. Wales).....	6 2 6 @ 6 5 0	

Copper.—The market stronger but only moderately active. To-day's prices for Bars were £41. 15/, spot; £41, three months' futures. Best Selected, £47.

Tin.—Considerable business doing, prices irregular. Straits quoted at £89. 5/, spot, and £89. 17/6 for three months' futures.

Lead.—The market steadier but quiet. Quoted £12. 7/6 for Soft Spanish.

Spelter.—Prices very firmly held, but demand less active. Quoted at £19. 17/6 for ordinary Silesian.

Foreign Markets.

EQUIVALENTS.

	Cents.
Franc, Peseta or Lira.....	19.3
Florin (Netherlands).....	40.2
Florin (Austria).....	35.0
Millreis (Portugal).....	54.6
Millreis (Brazil).....	23.8
Mark (Germany).....	2.205
Kilogram.....	134.
Picul.....	

AUSTRALIA.

MELBOURNE, VICTORIA, July 4, 1889.—**Iron.**—Importers are evincing more readiness to meet the market. There has been greater animation and in a few instances even better prices have been obtained. Thus, Galvanized Iron has improved 10/ and B.B.H. Merchant has been paid £19. 10/, against £17. 10/ June 20. Fence-Wire is quoted £9. 2/6 and Scotch Pig, Clyde No. 1, is in good request at £4. 2/6. **Tin.**—Shipments for the fortnight from Australia and Tasmania have been 300 tons.—*Per cable via London.*

CHILI.

VALPARAISO, May 24, 1889.—**Copper.**—The only sale made during the fortnight to a speculator was of 75 tons Lambert on private terms. At the present parity in London of £39. 10/ production will necessarily be reduced still further. Only a few mines in a favorable position are still at work on a reduced scale, while the majority have stopped operations altogether. **Coal.**—Has been steady at 37/6 Newcastle and 26/ @ 27/ Australian. **Exchange.**—The market is very firm at the close at 25½d for 90 days' sight bank bills.—*Weber & Co.*

CHINA.

HONG-KONG, June 14, 1889.—**Petroleum.**—The market is very quiet at \$1.95 @ \$2 per case, Comet brand. Stocks have been allowed to accumulate and it is feared that a further decline will ere long take place.—*Arnhold, Karberg & Co.*

SPAIN.

BILBAO, July 6, 1889.—**Iron Ore.**—Has continued quite lively; no large contracts have transpired, but a number of single cargoes were sold at 7/1 @ 7/4 for superior Rabios, 8/3 @ 8/6 Campanil. Many steamers have dropped in, so that more Ore will be shipped than for a fortnight past. Total shipments since January 1 sum up 2,054,746 tons, against 1,965,633 same time last year and 2,350,805 in 1887. **Pig Iron.**—The week's export was 1602 tons, and 482 went coastwise. The export of Ores and metals from Spain during the first five months has been as follows:

	1887.	1888.	1889.
	Tons.	Tons.	Tons.
Calamine.....	14,129	11,186	9,564
Pyrites.....	333,431	341,009	412,780
Iron Ore.....	2,280,999	1,926,202	2,152,230
Pig-Iron.....	49,283	28,768	31,701
Iron Rails.....	18,588	13,119	3,581
Precipitate.....	11,696	12,026	11,792
Quicksilver.....	777	664	1,272
Pig-Lead.....	56,051	53,932	53,138
Totals.....	2,764,954	2,386,906	2,706,058

—*Bilbao Marítimo y Comercial.*

EAST INDIES.

SINGAPORE, June 12, 1889.—**Tin.**—Since our last report of the 29th ult. only 155 tons have been sold, and the price has been steadily maintained at about \$35 per picul, the equivalent of which is something over what has been current in London. Stocks have been reduced to almost nothing, and the general belief is that not much is held back in the native States, while mining operations are not going on at all briskly. **Gum Copal.**—Fine quality for the Continent and good quality for America have been sold at \$12.50 and \$10.50 per picul respectively. Stocks are large and firmly held here for full prices, but late arrivals have been on a small scale. **Gum Damar.**—About 15 tons of Banjar have changed hands at \$15 @ \$15.50 per picul. **Tonnage.**—There is more room offering from China, and no great quantity of cargo coming forward for London; rates have given way, and it was expected they would. **New York via Cape.**—The Elise and S. R. Lyman are loading, while the Mariner is expected daily. Rates are unchanged. *For Bos-*

ton.—The Thomas A. Goddard has sailed and the Mystic Belle has taken her place. **Exchange.**—Is a shade weaker at 3/1½ for six months' credit drafts.—*Gilfillan, Wood & Co.*

MANILA, July 22, 1889.—**Hemp.**—There are sellers at \$14, against \$9.25 per picul same date last year, equaling per ton, cost and freight, \$45. 15/, against \$31. 5/. Clearances for the United States since last cable amounted to 1000 bales, against none same time last year; since January 1, 135,000 bales, against 99,000; loading for do., 8000, against none; cleared for England since January 1, 158,000, against 193,000; loading for ditto, 15,000, against 23,000; cleared for all other ports, 26,000, against 45,000; receipts at all ports since last cable, 9000, against 5000, and since January 1, 321,000 bales, against 328,000 in 1888 and 257,000 in 1887. **Freight.**—\$7.50, against \$6. **Exchange.**—Six months' sight, 3/5½, against 3/5½.—*Ker & Co., per cable direct to their agent in New York, Mr. Charles Nordhaus, 89 Water street.*

GERMANY.

HAMBURG, July 20, 1889.—**Iron.**—The late strikes had disturbed operations of the blast-furnaces so much in Rhenish-Westphalia that the supply has run down fast, while the demand is as brisk at present as it has been at any time this summer, hence the upward tendency. Spiegel is wanted for home use, less so for export. Stocks thereof are reduced and the price advanced to 68 marks. The quotation at Dortmund for Forge Pig is 47 @ 63; Foundry ditto, 59 @ 66; White Steel, 61 @ 62; Bessemer, 61 @ 62; German ditto, 61 @ 62; Thomas, 47 @ 48, and Luxembourg, 38 @ 43. All sorts of rolling-mill products have enjoyed a good domestic demand, but not for export. Both foundries and machine-shops are remuneratively and steadily engaged. This may also be said of all railroad material. Wire Rods command 110 @ 120; Steel Rails, 128 @ 130, and ditto for mines, 120 and above this. **Metals.**—Remain in good position and well sustained.—*Borsenhalles.*

BELGIUM.

BRUSSELS, July 20, 1889.—**Iron.**—The Belgian markets remain unaltered, but quite firm. The demand runs for the moment chiefly on Merchant and Plates and Sheets. The 15,000 tons of Steel Rails which the Government stood in need of went at 132.50 @ 135 francs per ton on the 17th inst. by adjudication.—*Monteur des Intérêts Matériels.*

Legal Decisions.

PARTNERSHIP—SURETY BOND—AUTHORITY TO SIGN.

F., M. & H. were a firm dealing in cattle, and M. executed a surety bond for the benefit of one of their customers on a contract for the delivery of 8000 head of cattle. This bond was made without the knowledge of F. and H., and when suit was brought upon it the defense was set up that it was not binding on the firm. In the court below judgment was given for the plaintiff, and the case—*Fore vs. Hittson*—was carried to the Supreme Court of Texas, where a reversal was had. Judge Walker, in the opinion, said: "It was suggested by the court on the trial that F. and H. had held out to the public that M., as their partner, had authority to sign such contracts as this surety bond, and this suggestion was several times repeated. But the evidence did not at all support the suggestion. The two instances shown (the bond in suit and one other) in which M. used the firm name as security for third persons, both unknown to F. and H., were not a course of business form in which any authority could reasonably have been inferred against the partners. Upon a study of the record we find in it no testimony at all of authority from F. and H. to M. to sign their names as sureties to the bond, or to use as a basis of credit for the principal to the bond the firm name of F., M. & H. The bond was not made in the business of the firm or in settling up its old business. No acts are shown of H. and F., or either of them, in ratification of M.'s attempt to bind them. They never knew of it until after suit and could not ratify it without knowledge of it. No act or course of business on their part appears in the record from which an estoppel can be inferred, and there is no want of knowledge

of the want of authority on the part of M. by the obligee. It is a well-recognized rule that where one member of a firm uses the name outside the business of the firm and that is shown, it then devolves upon the holder of such obligation to show authority for such use, which may be established by direct or circumstantial evidence; or a ratification subsequently made will supply authority. It also appears to be well settled that where a firm name is used as surety for a third person the presumption is that such use of the firm name is outside the firm's business, and that in such cases the burden of proof to establish assent, estoppel or ratification lies upon the person asserting the liability of the parties not acting in the signing of the liability. The judgment must be reversed and a new trial granted defendants."

MECHANIC'S LIEN—OBLIGATION OF CONTRACT.

C. brought suit to foreclose a mechanic's lien against the officers of a church corporation for materials furnished by him under an agreement made by him with W. as contractor for building a church, but was defeated, and he carried the case—*Colpetzer vs. Trinity Church*—to the Supreme Court of Nebraska, where the judgment was reversed. Judge Cobb, in the opinion, said: "The defendants contend that they are not liable, or rather that the church building cannot be sold upon this claim, because plaintiff supplied the material to W., who has failed in his contract and is indebted to them. Our Mechanic's Lien law provides that all creditors for labor and materials contributed to the improvement of real property shall be secured on the house and land and shall not be compelled to look to the contractor alone. The Legislature may impose that condition and liability upon landlords; that position will not be disputed. It is not a hardship or risk greater than that of mechanics and dealers obliged to protect themselves from irresponsible or dishonest contractors for wages and materials which enter into the betterments of land and increase its value. It is claimed, however, that when a contractor obtains supplies of material to be used by him on a building which is in the course of construction the landlord cannot be held to any additional liability beyond his obligation to the contractor that a law fixing such a liability is in contravention of the Federal Constitution forbidding the passage of any law impairing the obligation of contract. We cannot assent to this condition. We have no doubt that one furnishing materials in good faith for the erection of a building under an agreement with a contractor for that purpose may file a mechanic's lien upon the structure and lot. The lien is given, however, not upon the ground that a contract was made by the owner with such sub-contractor, but because the material so furnished was used in the erection of the building. The furnishing of the material is notice to the owner of the rights of the party, and until the time for filing a lien has expired he is directly liable to such party for its value."

ASSIGNMENT—ASSIGNOR'S CHILDREN—CREDITORS FOR SERVICES.

In his schedule of creditors M. included his children for the value of their services, as he had agreed to pay them for helping him in the business. It was claimed by the creditors that this was a fraudulent statement of liability and that the assignment was void. In the suit brought to set aside the assignment—*Farwell vs. Maxwell*—in the United States Circuit Court, Southern District of Iowa, Judge Shiras in the opinion said: "There may be no legal liability to support the credit given to the children, but that the credit given will not vitiate the assignment for fraud."

Hardware.

There has been but little increase thus far in the volume of business, the trade showing a disposition to hold off in the placing of orders. There is, however, a steady business doing in a small way and some considerable orders have recently been placed by jobbing houses. Prices for general Hardware are without change and have not materially strengthened. The general prosperity of the country and the prospect of fine crops inspire confidence that the fall trade will be good.

Wire Nails.

The market on these goods remains without especial change and with only a moderate volume of business. The new card is generally used, though the old one is to a certain extent adhered to. On the papered goods the new list of the Western Association is adopted by the principal manufacturers of the Standard Nails and by a few others, but the Tack manufacturers adhere to their former list, and at the prices now ruling it would seem that their goods are somewhat lower than those of the association, notwithstanding the fact that the Tack manufacturers do not make deliveries to the same extent as the association.

Cut Nails.

The market is fairly firm at \$1.90 for usual lots. Western manufacturers have been making such inroads lately that it is possible that carload lots and heavier could be purchased at a trifle less, depending entirely on the ability of the buyer to find the manufacturer willing to make the concession. The Eastern manufacturers are watching the developments in the West with much interest, and are exceedingly anxious to have matters in that section arranged satisfactorily, believing that the effect will be beneficial to Eastern trade. The general belief of the local dealers is that prices here will be maintained at \$1.90, and will not go higher unless there is a further advance in raw material. The upward tendency in Pig-Iron and Steel has already affected the cost of Nails, and this is making manufacturers considerably firmer in their views. Trade is running along very smoothly so far as demand is concerned, without very much variation from week to week. Nearly every dealer in this market is short of 10d and 8d Nails, and while some of them are asking no advance on orders calling for base sizes, others insist upon getting a premium of 10 cents to 20 cents per keg on such orders.

The Western Cut Nail Association held an adjourned meeting at Wheeling, on Wednesday, the 24th ult., and adopted an important measure relative to the Nail trade. A fair representation of the association was present—11 out of the 14 corporations comprising the association. Several important matters were presented and partially discussed, but were adjourned, without any definite action being taken, until the next meeting, which will be held August 7th. The matter of reducing the size of the Cut Nail received its final action and the reduction was authorized by a formal vote. The following gentlemen were appointed to prepare the details of the matter and issue a circular to the trade: Major A. Loring, of the Benwood; C. A. Robinson, of the La Belle; H. M. Priest, of the Junction; R. S. Warner, of King, Gilbert & Warner, Columbus, Ohio; and W. L. Glessner, of the Laughlin mill. August 5th was the date fixed for it to go into effect. The table printed below represents the number of Nails per pound of each size manufactured under the old régime, and the number per pound as they

will be cut hereafter. The object of the association was to make the Cut Nail weigh as near the number per pound of the Wire Nail as practicable without impairing its effectiveness or diminishing its holding qualities. The association had specimens from six different Wire-Nail factories before them and made up their estimates by actual weight.

Sizes.	Present weight of Cut Nails. Number per pound.	New weight of Cut Nails. Number per pound.	Actual weight of the Wire Nail.
3d Common..	464	525	608
4d ..	296	325	312
5d ..	224	250	256
6d ..	168	200	185
7d ..	120	150	144
8d ..	88	105	104
9d ..	72	90	84
10d ..	60	75	72
12d ..	48	55	51
16d ..	36	45	45
20d ..	24	30	30
30d ..	17	25	24
40d ..	14	19	18
50d ..	10	14	14
60d ..	8	11	11
6d Fence..	84	105	100
7d ..	64	90	96
8d ..	48	65	65
9d ..	36	50	57
10d ..	30	40	46
12d ..	24	30	36
16d ..	20	25	32
20d ..	16	20	27
6d Brads..	126	150	.....
7d ..	98	120	.....
8d ..	75	90	.....
9d ..	65	75	.....
10d ..	55	65	.....
12d ..	40	50	.....

A press dispatch from Charleston, W. Va., states that the Central Nail Company, of Wheeling, with a capital stock of \$1,000,000, have been chartered by the Secretary of State. The incorporators are A. W. Campbell, S. K. Walkie, Joseph Bell, W. L. Glessner and J. N. Vance, all of Wheeling. We are advised from other sources that it is the purpose of the projectors of the company, who are all connected with Western Nail mills, to buy the entire Nail product of the Western Nail mills and sell it through one management without competition. The production is to be regulated by the Central Nail Company according to the requirements of the market. The success of the movement depends on the consent of the mills to co-operate or join the new company. This will require the stockholders of each company to vote approval of the plan, which will take some weeks. The project is in a formative stage as yet. The special business of the Western Cut Nail Association's meeting of August 7 is to discuss the scheme.

The Junction Iron Company, of Mingo Junction, Ohio, have issued a very neat circular stating that they expect to resume operations in their Nail factory about August 10, and that they will then place on the market Steel Cut Nails very much reduced in weight as compared with former patterns. They print a table making a comparison in price between Junction Nails and Wire Nails, stating that they will offer the same number of Nails to the pound.

Miscellaneous Prices.

The competition in Loaded Paper Shells continues animated and prices to the general trade are gradually working down. There is also the prospect of new competition, it being recognized by the Powder and Shot manufacturers that this is a line of goods in which there will be a large and increasing business.

The Goulds Mfg. Company, Seneca Falls, N. Y., issue a circular relating to the Duke Pitcher-Spout Pump, a new article which they have recently put on the market. They make but one size, No. 2, 3 inches diameter. This Pump is quoted in lots of 100 at 90 cents. It will

probably have a large sale as meeting the wants of those who desire a light-weight Pump of this description at a low price.

The manufacturers of Blacksmiths' Bel-lows are solicitous to take orders and slight concessions are made in price.

The market on Tackle Blocks is not characterized by entire regularity and the goods are being sold in some cases at somewhat lower prices than have recently ruled.

There are no important features in the general condition of the Lock market, but the tendency to the use of net prices instead of quotations by list and discount is constantly increasing, until at the present time the greater part of the sales are thus made. Prices are generally unsatisfactorily low. The common goods are referred to as very cheap, and there is a disposition also to sell the better class of Locks at closer figures than heretofore, thus rendering the sale of this class of goods less remunerative than the manufacturers desire. Padlocks are also low, but the general market is unchanged. It is, however, reported that a large sale has recently been made to a syndicate of jobbers at prices which are a concession beyond those generally ruling.

Items.

Haydock & Bissell, 12 Murray street and 15 Park Place, New York, announce the opening fall trade sale. It will take place August 14, 15 and 16, and will embrace 2000 lots of Table and Pocket Cutlery, Carvers, Butcher-Knives, Scissors, Shears, Plated Flatware, &c., received direct from manufacturers and importers. Further particulars are given in their advertisement on page 58, and there will be a fuller reference to the sale in the next issue of this paper.

Sise, Gibson & Co., 118 Chambers street, New York, have issued their Skate list for the present season. The different patterns of their Skates are illustrated, with list prices and information in regard to comparative sizes of Skates and shoes, assortments to order, &c. A convenient cipher sheet is issued. Their advertisement illustrating their 1888 Derby Lever will be found on page 77.

The American MacLine Company, Philadelphia, have just issued their catalogue No. 10, 1889. The goods referred to in the catalogue are illustrated and noticed in the following order: Ice-Cream Freezers, occupying ten pages; Ice-Chippers, Ice-Shaves, Meat-Cutters, Mrs. Potts' Crown Sad-Irons, Star Double-Pointed Sad-Irons, Clothes-Wringers, Fluting-Machines, Tobacco-Sheaves, Cake-Mixer and Pumps. At the close of the pamphlet some 25 pages are devoted to a very full illustrated description of the Perfection Scale, which is made in a variety of sizes and styles and adapted to all ordinary purposes. The pamphlet is very neatly gotten up; in fact, the noticeable feature of it being the absence of all superfluous decoration and useless display. The excellence of the paper, cuts and typographical work deserves special mention. The company inform us that they will be glad to send copies of this pamphlet to any dealers who have not received them.

Tyler Can Works, 316 Franklin street, Baltimore, Md., are calling special attention to their Self-Sealing Can Tops and Bottoms, on which they are making quotations which they refer to as deserving the attention of the trade.

N. P. Bowsher, South Bend, Ind., issues a pamphlet describing his Combination Feed-Grinding Mills. The construction of these mills is explained and the different numbers illustrated, with full descriptions and testimonials. The advantages possessed

by them are thus clearly indicated. Mr. Bowhser also issues a circular relating to his Motion or Speed Indicator, designed for the use of machinery where a certain and uniform speed is necessary in order to obtain good results. This Indicator is referred to as having been recently improved in simplicity, durability and appearance. It is made either with or without alarm.

Foster Bros., Fulton, N. Y., in their advertisement on page 61 call attention to their line of Knives, Cleavers, Steels, &c., on the quality of which they lay special emphasis. John Chatillon & Sons are the New York agents, 85, 87 and 89 Cliff street.

The Central Iron and Steel Company, Brazil, Ind., issue a circular describing their Open Hexagonal Turn Buckles, for the sale of which Anthony & McElroy, 328 Chestnut street, Philadelphia, are agents. Illustrations are given, with an explanation of its special features and also list prices.

A price-list issued by the E. C. Meacham Arms Company, St. Louis, Mo., under date July 17, refers especially to summer goods, in which Hammocks, Tents and Bicycles are given a prominent place. Fishing Tackle is also represented.

Sandage Steel Skein Company, South Bend, Ind., issue circulars illustrating the Sandage Skein, which is forged from a continuous blank of wrought steel. Interesting illustrations are given showing the evolution of the Skein.

Frank Smith, of Gilroy, Cal., having retired from the business he has successfully carried on in that location for the past 22 years, is succeeded by Welburn, Powell & Whitehurst, who will continue to carry a full line of Hardware, Agricultural Implements, &c.

Announcement is made that the Northwestern Shot Company, having absorbed the business of the Omaha Lead Pipe Company, Omaha, Neb., and the Northwestern Lead Pipe Company, St. Paul, Minn., will hereafter be known as the Northwestern Shot and Lead Company, with main office at Omaha and branch at St. Paul, the latter in charge of T. H. Merriam, secretary. The manufacture will be carried on at both places, and the company are prepared to fill orders for Shot, Sheet-Lead, Solder, Pig-Lead, &c., at the lowest market rates, with shipments from either city, as freight may be favorable.

A correspondent writes as follows in regard to the condition of business in Iowa:

Trade in Eastern Iowa is quiet, the trade being light and merchants buying little. The prospects are good, everything looking fine. Oats, which are a large crop usually, are larger than for 20 years. Corn is looking fine. Most of the oats are cut. The hay crop is also large. Very little wheat is raised. So there is a hopeful feeling for fall trade.

The Farmers' Alliance.

Some apprehension has been entertained that the Farmers' Alliance in some of the Southern States would result in something of a disturbance to general business, but our advices are that such has not thus far been the case. The following letter from a Hardware house in Georgia explains the purpose and operation of the alliance:

The organization has for its object, I believe, the elevation and bettering of the class composing it. But while this may be true, its success will depend upon its management. I confess to having confidence in good being done in this county, and, of course, I mean that this good will not be achieved at the injury or hurt of others of our people. The best class of farmers are in it here and working it. They say their object is self-protection

and mutual good to all home people. At present their main fight ostensibly is waged against jute bagging, which they seem determined not to use, but bagging made of cotton instead. They are now erecting a cotton warehouse in Quitman and propose to handle their own cotton. There is talk also of their establishing a bank, and as our planters have considerable surplus money I can see no good reason why they should not put it to this use. So far they disclaim any intention of having an alliance store here, but say their purpose is to get their people to economize, buy only for cash, and thus place themselves in position to get goods at much lower prices. My confidence is in those who are running it here. But, of course, time alone can develop the true workings. I ought to say that it will perhaps affect my business some, as I understand they may negotiate with first hands for heavy goods, &c., such as Machinery, Wagons, Buggies, &c. They are enthusiastic.

The following advices in regard to the purpose of the alliance are from a well-known Hardware house and will be of interest:

The farmers have established stores through alliances at different points in the State. They also have warehouses for handling Cotton so as to avoid the middle man. We have sold a good many goods to the alliance stores and sell them at regular jobbing prices. We think, however, that their efforts to run this business themselves have had very little effect on the general trade.

Trade Topics.

We have received from a prominent Hardware man in Texas the following advices in regard to the anti-trust law in that State, to which we have previously referred:

On July 23 there were 14 anti-trust indictments presented before the court at Greenville, Texas. Motions to quash were overruled, the State virtually acknowledging the law a dead letter, as County Attorney Cushman entered a *nolle prosequi* in all the anti-trust cases. After consultation with good legal authorities I have come to the conclusion that the law is a statutory botch and a dead letter. It is forcibly stated by a prominent lawyer that the author of the act is not lawyer enough to write a good petition on a promissory note or draw a good indictment for hog-stealing.

We have received from a manufacturer the following letter:

I have been watching for an advertisement of a Hardware store where the advertiser was honest enough to give his location. For months all such advertisements have looked suspicious. I should think if a man wanted to sell he would be willing to tell his name and where his property is situated. Perhaps you can tell why they are ashamed to tell these things. I should like to have these things answered in your columns.

In reply to our correspondent we would say that he is evidently mistaken in the view he takes of the class of announcements to which he alludes, inasmuch as while a merchant may sometimes find it to his advantage to announce to the world his desire to dispose of his business, in most cases he would prefer for various reasons to keep the knowledge of the matter limited to those who are interested in it. In every issue of *The Iron Age* announcements are made of opportunities for the purchase of established Hardware concerns, and any parties who desire seriously to consider the purchase of such concerns will find no difficulty after correspondence with the parties in getting at the facts in the case. In most cases nothing would be gained by the advertisers if the announcements were made openly with name and address. For practical business purposes the course usually adopted is the best.

Observations in Alaska.

In conversation with Charles L. Mead, widely known to the Hardware trade, to whose recent trip to Alaska we briefly alluded last week, we have been favored with the following observations concerning this comparatively new section of our country. They will doubtless be read with special interest:

Strange sensation that of sailing up through the waters of British Columbia for three days in search of a portion of the United States. This is done, however, before reaching Alaska. But a very large slice of territory is then found, in area something like one-fifth of the rest of our entire country.

The purchase of Alaska from the Russian Government seemed almost a joke at the time it was consummated, and was referred to as "buying a refrigerator for the United States." Public sentiment has now greatly changed and the purchase at even more than the original \$7,000,000 paid would be quickly ratified.

It is not strictly necessary to pass through British Columbia in getting to Alaska, for a vessel can go outside of Vancouver's Island and along up the Pacific Coast. There is, however, an inland passage for nearly the entire distance from Puget Sound up to Sitka, and this is followed by steam vessels. Regular steamers run from Tacoma, Wash. Ter., to Sitka twice each month, carrying freight for the few towns *en route*, and also for the fish canneries and mining camps along the way. These steamers make the round trip in about 20 days and tourists have plenty of time to go ashore and see all that is of interest during the time occupied in the exchange of freight.

The voyage has a peculiar fascination, as the steamer makes its way through a succession of bays, straits or narrows, from 10 to 30 miles back from the Pacific Coast. The trip is made on tide-water, but from either side of the boat can constantly be seen thickly-wooded mountains standing at the water's edge, and most of the time the high snow-covered peaks of the interior are visible.

The climate on the coast of Alaska so far up as Sitka is surprisingly mild, influenced as it is by the warm currents of the Pacific setting across from Japan. A few miles back from the coast the climate is very rigorous. Wet weather is almost constant along the coast. The warm winds from the ocean here come in contact with the cold mountain peaks and the moisture is precipitated in form of rain.

In the mountains back from the coast immense glaciers are found and a few can be seen from the deck of the steamer. These glaciers appear like great frozen lakes or rivers between mountains—mountains of ice in themselves—crumbling away at the seaward end, but renewing their bulk continually up in the higher altitudes. In front of the Muir Glacier the steamer lies at anchor for a part of a day. The face of this glacier is 400 feet high above the surface of the sea and $1\frac{1}{2}$ miles wide. A short distance back from the sea the width is said to be 13 miles. The face presents a surface of clear blue ice, and at intervals icebergs break off with a report like artillery. The entire glacier has a constant movement toward the sea, but too slow to be noticed by visitors, or to be measured except by scientific experts.

The extreme island of Alaska (Attu), in the neighborhood of Kamtschatka, now owned by the United States, is several hundred miles further west of San Francisco than is the State of Maine east of that city. It is claimed that as on Queen Victoria's domain the sun never sets, so now on the United States it never sets, for before it disappears at Attu it is reappearing down in Maine. In the latitude of

Chilcat the sun sets at 10 o'clock in the evening at this season of the year.

How unimportant are mere territorial acquisitions will appear from a report made by a United States official only two years ago concerning the state of education in some of these outlying islands: "There are American citizens who have never heard a prayer for the President of the United States, or of the Fourth of July, or of the capital of the nation; are taught to pray for the Emperor of Russia, celebrate his birthday and commemorate the victories of ancient Greece." Undoubtedly these same citizens will commence voting for Andrew Jackson for President and continue to do so for a lifetime whenever they learn that they belong to the American republic.

The native Alaskan, though spoken of as an Indian, is an entirely different type from our North American Indian. With a Mongolian visage and with traits similar to the Asiatic races, an observer can easily accept the theory that the first inhabitants of Alaska came across from Asia at Behring Straits. They are industrious and for the most part peaceable.

Abundant opportunity is offered tourists to observe the natives in their cabins and employed in fishing or about the mines. The men are very skillful in making canoes, of which great numbers are wanted. The women make baskets, blankets and some bead-work, and wherever the steamer stops the whole native population is down to sell curios to the passengers. A very picturesque sight, and especially so at points where there is no wharf, the steamer lying at anchor, surrounded by scores of canoes from which the natives display their wares and shout the prices in guttural tones. They are one-price traders, though, and competition makes no difference with them, for they know nothing yet about selling goods by discount.

At Fort Wrangel a small garrison was once stationed by our Government when Alaska was turned over to the United States, and the log-houses used for barracks, together with portions of a stockade which was thrown around the whole, still remain standing. The hospital building alone is now occupied for an Indian school. No hostile acts by the natives required the presence of soldiers and they were withdrawn.

At Sitka, the old Russian capital of Alaska and the present seat of the United States district government, a small body of marines is stationed, and a man-of-war, now the Thetis, cruises from Sitka down to Puget Sound and away northwestward to Behring Straits and Point Barrow.

The landing of the steamer at Sitka is as interesting as any single incident in the voyage. The crowd which awaits the arrival of the boat embraces four distinct elements: The native Indians, the men whose Russian garb denotes their origin, the marines and officers stationed here, and the few civil officers and citizens who now reside in Sitka from "down below," as the Alaskans designate all other portions of the United States.

The Greek church, the State church of Russia, is still prominent, and in Sitka a conspicuous church building filled with rare pictures and treasures may be visited. Vigorous mission churches and schools, maintained by the Presbyterians, are found at Sitka, Juneau and Fort Wrangel.

How rapidly a population from the older sections of our country will be attracted to Alaska will depend on the further developments in the fisheries and in mining. Agriculture is unknown there. The fisheries are already important and remunerative. Very sanguine predictions are made as to future mining in Alaska, and prospecting is being carried on at many points. Not the only project which has materialized, but the prominent one, is the Treadwell Mine, at Douglas Island,

near Juneau. Here is the largest gold mine in the world, with 240 stamps, crushing 600 tons of ore per day and with an apparently inexhaustible supply of ore in reserve. Juneau is the principal commercial city in Alaska, and is likely to remain so from its contiguity to mining operations. Here the steamers stop both going up and coming down from Sitka.

Travel in Alaska is almost wholly confined to water-ways. A mountain road four miles in length, back to a mine near Juneau, is said to be the longest road in Alaska. At one point a trail has existed for some time from the Chilcat River over the divide to the head waters of the Yukon River. It lies through territory occupied by the Chilcat Indians, said to be less amiable than some of the other tribes. They are, however, civilized to the degree that they claim a monopoly on overland transportation across this trail, and carry freight on their backs for prospectors and miners at the rate of \$15 per 100 pounds. They are ready to fight in defense of their vested rights.

Alaska has not even a territorial government yet, but a Governor and other officials are sent up under appointment from Washington, the form of government being that of a district. No elections are held and no representation in Congress, even by a delegate, is yet given. No land laws apply up here, and possession may be said to be ten points. Col. Lyman E. Knapp, of Vermont, recently appointed Governor of Alaska, has just gone up to Sitka and assumed his official duties.

Concerning Alaska as a place of residence at present, it is undisputed tradition up there that a few years since an army mule was purchased by a man from Juneau and shipped home. The day after his arrival the mule deliberately walked out into tide-water, put his nose under and gave up the ghost. No papers were found on his person accounting for the rash act, and it is supposed that the mule preferred death by drowning rather than life in Alaska.

That Persimmon Pole.

BY KNAPP.

The adage of the longest pole knocking the persimmons conveys the idea that exertion put forth in the right direction, or being inside the ring, is sure of bringing success.

Experience teaches, however, that long poles in certain hands overreach, or knock the fruit before it is ripe, which brings anything but the desired results. Before the frost of experience has touched the persimmon the fruit is not as desirable as it looks at a distance.

We find some people in business are overreaching by trying to be too smart for those with whom they are dealing to have confidence in their advice or promises, or to trust them further than they could "swing a yellow dog by the tail." Others ask an exorbitant price for an article of a customer who is not posted, hoping to make up a previous loss of profit on some article sold too cheap. Those who have not succeeded in some line of business which they were brought up in, strike off into something else, thinking they can make this win because some one else who has had experience is doing a good business in the new line. How few people there are to-day in any business who would not be more than willing to sell out if they could get anything like a fair value for the goods on their shelves. Business looked encouraging before they went into it, but dull times, expenses and competition have cut down profits and that has caused dissatisfaction. It is the old story of going to war before counting the cost.

It is well, however, not to give up because these times of depression have

become periodical and they must be weathered through to get the benefit of the better ones that are sure to follow. While others have been over the same ground but a short time before and found the persimmons were puckery, you may knock them after the frost has touched them and find them delicious. A persistent course in the direction of honesty, fair dealing and live-and-let-live policy will bring its reward. These must, however, be supplemented with energy, a constant study of the needs of the people and the best way to make your goods sell, both by arranging them so they are attractive and having them offered by competent salesmen. There is nothing so large or so small which will increase your business but is worthy of consideration, with a view to adopting it.

Can a Man Use His Own Name?

A late issue of the London *Ironmonger* contains under the above caption a statement in regard to litigation in which a well-known Steel and Hardware manufacturing house are concerned and which may interest our readers:

The Court of Appeal say "Yes" to the above question, and in so saying they reverse the decision of Mr. Justice North. The case is one which was reported and commented upon in our issue of March 16 last, and in which Thomas Turton & Sons, Limited, Sheffield, sought to restrain Mr. John Turton and his sons from trading as "John Turton & Sons," also at Sheffield. The plaintiffs in the original action are very well known in the metallurgical and engineering world both as steel manufacturers and as makers of springs, buffers and other goods. The senior defendant had long carried on business as "John Turton & Co.," and in his particular line of business as a steel roller and as a steel manufacturer he is also well known at home and in certain places abroad. So long as he carried on his business as "John Turton & Co." the plaintiffs did not endeavor to interfere with him, but directly he announced that he had taken his sons into partnership, and would thenceforward carry on the same business as "John Turton & Sons," they took steps to restrain him. After serving the usual notice they tried to obtain an injunction, but failed, and the action came up for trial in the customary manner before Mr. Justice North. That learned judge heard the arguments on both sides, and finally summed up in favor of Thomas Turton & Sons, Limited, stating that he considered the weight of evidence was on their side. On application, however, he suspended the operation of his judgment, pending the notice of appeal by the defendants. That notice was duly given, and the appeal came before the Master of the Rolls and Lord Justices Cotton and Fry on Monday, Tuesday and Wednesday of the present week. On behalf of the appellants the leading points of their case were set forth very clearly by Mr. Rigby, Q. C., who showed that there was not the slightest allegation of fraud against his clients, that there was no attempt at deception, and that John Turton & Sons had in no way tried to do other than what was strictly just and within their rights. For Thomas Turton & Sons, Limited, Mr. Cozens Hardy, Q. C., naturally enough contended that the decision of Mr. Justice North was right, but it was apparent that the Court of Appeals were of the opposite opinion. The whole of the three judges appeared to be perfectly clear that there is no law whatever to restrain a man from using his own name if he does so without fraud and gives a proper and natural description of his firm. Mr. Hardy struggled to controvert this view during part of Monday afternoon, and Mr. Moulton, Q. C., made a most gallant fight during the whole of Tuesday in order to shake the obvious determination of the Lords Justices to reverse the decision of the court below, but entirely without avail. Mr. Moulton

held and tried to prove that his clients' name (that is, their firm-name) virtually constituted a trade-mark, but the court declined to entertain his view. Lord Justice Fry, for instance, put a hypothetical case and held to it throughout. "Suppose," he said, "that in a certain town there is a John Smith who is a grocer who sells good tea, coffee, and so on—in fact, he obtains a good reputation among his customers. Then, suppose that another John Smith, also a grocer, comes into the same town and commences business, would you (to Mr. Moulton) try to stop the second John Smith from carrying on his business?" To which Mr. Moulton could only reply that that was an extreme case—an observation which drew the response that no principle of law was worth anything which would not stand extreme illustrations. Mr. Moulton also spoke repeatedly of the appellants "taking" the name of "John Turton & Sons," but the Master of the Rolls reminded him that they did not "take" the name, it was their name. This distinction is obviously of great importance, and it is also important to remember that the question of a man trading under his own name simply is very different from doing that and endeavoring to so "garnish" the goods he produces as to try to give the impression that they are the goods of another firm. The Court of Appeal gave judgment on Wednesday, and unanimously decided in favor of John Turton & Sons, thus reversing the decision of Mr. Justice North and upholding the right of a man to trade under his own name. This decision is not only an authoritative exposition of the law, but it is also in accord with the dictates of sound common sense.

Exports.

PER SHIP CANARA, JUNE 26, 1889, FOR SYDNEY,
N. S. W.

By R. W. Cameron & Co.—30 gross Polish, 1 case Bells, 1 case Saddlery, 1 case Hardware, 1 barrel Bells, 1 case Polish, 4 cases Axles, 2 cases Harness, 1 case Hardware, 5 cases Bolts and Nuts, 4 bundles Harness Dressing, 1 case Hardware, 44 cases Shade-Rollers, 2 cases Polish, 3 packages Blowers, 1 box Sawmill Machinery, 1 box Braces, 11 packages Wood-Working Machinery, 1 package Belting, 1 package Saws, 2 packages Wood-Working Machinery, 1 barrel Hardware, 1 case Wood-Working Machinery, 22 cases Pulleys, 2 cases Stamped-Ware, 2 cases Saws, 2 cases Pumps.

By W. H. Crossman & Bro.—20 dozen Hatchets, 6 dozen Hatchets, 1 box Hardware, 8 dozen Axes, 5 dozen Razor-Strops, 2 boxes Hardware, 6 dozen Hatchets, 9 cases Carriage-Ware, 10 dozen Hoes, 4 dozen Hatchets, 12 dozen Handles, 6 dozen Hatchets, 22,494 pounds Barb-Wire, 750 feet Rubber Hose, 600 feet Rubber Hose, 6 dozen Mattocks, 6 dozen Razor-Strops, 2 dozen Freezers, 11 Refrigerators, 10 gross Shade-Rollers, 2 cases Plated-Ware, 6 dozen Hatchets, 6 dozen Egg-Beaters, 3 dozen Scales, 22 dozen Hay-Forks, 1 dozen Steelyards, 32 dozen Handles, 1 gross Mop-Handles, 12 dozen Lemon-Squeezers, 1 dozen Cork-screws, 3 dozen Tills, 12 sets Gun Implements, 10 dozen Hoes, 13 packages Hardware, 8 cases Hardware, 20 dozen Hatchets, 2 dozen Tills, 1 dozen Meat-Choppers, 30 dozen Handles, 14 dozen Picks, 6 dozen Hatchets, 60 dozen Handles, 30 dozen Fish-Lines, 60 dozen Axes, 40 dozen Hatchets, 30 dozen Axes, 10 dozen Axes, 30 dozen Hatchets, 1500 Handles, 1 dozen Meat-Choppers, 12 dozen Hammers, 2 dozen Pumps, 5 cases Hardware, 2 cases Hardware, 54 dozen Handles, 18 dozen Picks, 14 dozen Axes, 6 dozen Wrenches, 24 dozen Dog-Collars, 3 dozen Tills, 26 dozen Reflectors, 18 dozen Broilers, 13 pairs Roller-Skates, 24 dozen Hoes, 50 papers Nails, 12 dozen Whips, 2 dozen Guns, 36 sets Gun Tools, 15,000 Cartridges, 50,000 Primers, 2 dozen Ox-Yokes, 2791 pounds Iron Bolts, 3 dozen Cork-Pullers, 3/4 dozen Ice-Chests, 18 dozen Whip-Sockets, 96 pounds Tacks, 27 dozen Wash-Boards, 6 dozen Rolling-Pins, 100 boxes Clothes-Pins, 9 dozen Cages, 6 dozen Mattocks, 1500 pounds Staples, 1 gross Mop-Handles, 6 dozen Hatchets, 12 dozen Wrenches, 6 dozen Picks, 12 dozen Braces, 51 gross Graters, 49 packages Carriage-Ware, 74 bundles Rims, 12 dozen Hammers, 4 dozen Wringers, 1 dozen Augers, 27 Stoves, 4 barrels Stove Parts, 3 gross Pot-Cleaners, 2 dozen Meat-Choppers, 1 gross Lemon-Squeezers, 3 Miter-Boxes, 42 dozen Hatchets, 20 dozen Axes, 1 dozen Air-Guns,

1200 pounds Nails, 3 casks Pumps and Parts, 12 dozen pairs Anti-Rattlers, 10 dozen Glue, 72 dozen Axle-Clips, 1 gross Fruit-Presses, 18 cases Hardware, 29 cases Hardware, 1 box Castings, 3 packages Hardware, 6 dozen Bush-Hooks, 3 dozen Wood Scoops, 12 dozen Grindstone parts, 1/2 dozen Miter-Boxes, 10 dozen Axes, 2 dozen Squares, 12 nests Flour-Pails, 6 nests Wood Bowls, 2 dozen Pails, 5 gross Wood Spoons, 3 dozen Wood Tubs, 6 dozen Hatchets, 63 dozen Axes, 1 gross Hooks, 14 packages Hardware, 5 cases Wire Goods, 1 case Hardware, 3/4 dozen Pistols, 44,800 pounds Barb-Wire, 2 dozen Wringers, 3 gross Egg-Beaters, 18 dozen Traps, 6 dozen Hoes, 6 dozen Saw-Sets, 4 1/2 dozen Hatchets, 5 cases Hardware, 1 case Hardware, 5 gross Polish, 36 dozen Whips, 4 dozen Velocipedes, 4 cases Toys, 6 dozen Hatchets.

By Meriden Britannia Company.—4 boxes Silver-Plated Ware, 3 boxes Silver-Plated Ware, 14 boxes Silver-Plated Ware, 13 boxes Silver-Plated Ware, 27 boxes Silver-Plated Ware, 19 boxes Silver-Plated Ware, 9 boxes Silver-Plated Ware.

By B. F. Avery & Sons.—1 Plow.

By W. K. Freeman.—150 dozen Hay-Forks, 12 dozen Hay-Forks.

By J. A. Gifford.—3 packages Saddlery, 12 boxes Harness Blacking, 4 crates Pails, 1 box Hardware, 1 box Harness Blacking, 3 boxes Glue.

By Russell & Erwin Mfg. Co.—9 packages Hardware, 6 packages Hardware, 4 packages Hardware.

By Winchester Repeating Arms Co.—1039 pounds Guns, 35 pounds Tools, 75 Rifles, 75 sets Tools, 100,000 Primers, 20 cases Metallic Cartridges, 1 case Primers and Shells.

By J. L. Mott Iron Works.—990 pounds Stoves and Parts, 5505 pounds Stoves and Parts, 2154 pounds Stoves and parts.

By Delacamp & Co.—20 cases Spring Shade-Rollers.

By Waterbury Clock Co.—14 cases Clocks, 6 cases Clocks, 10 cases Clocks.

By Ansonia Clock Co.—29 packages Clocks, 9 boxes Clocks.

By Stewart Hartshorn.—40 cases Shade-Rollers.

By Parker & Whipple Co.—1 box Clocks, 1 box Clocks, 1 box Clocks, 1 box Clocks.

By Wilcox Silver-Plate Co.—4 packages Plated-Ware.

By Collins & Co.—90 dozen Edge Tools.

By P. D. Ackermann & Bro.—280 Clocks.

By Fairbanks & Co.—55 boxes Scales, 6 crates Money-Drawers.

By H. B. Moore.—3 kegs Emery-Wheels.

By J. H. Starin.—3 cases Wagon-Jacks.

By Edward Miller & Co.—6 packages Lamp Goods, 60 packages Lamp Goods.

By Goulds Mfg. Co.—9 Hand-Pumps, 40 Hand-Pumps, 52 Hand-Pumps.

By F. B. Wheeler & Co.—6 gross Whips, 1 1/2 dozen Hardware, 1/2 dozen axes, 1/2 dozen Hardware, 2 cases Clocks, 2 dozen Saddlery, 119 packages Hardware, 1/2 dozen Lamp-ware, 1 case Hardware, 1 dozen Emery-Wheels, 4 cases Electrical Goods, 3 boxes Tin-Ware, 25 cases Axes, 1 case Hardware, 33 dozen Reflectors, 1 case Rubber Goods, 100 feet Hose.

By Edward Miller & Co.—1 box Files, 3 packages Emery-Wheels, 33 packages Lamp-Goods.

PER BRIG R. S. T., JUNE 29, 1889, FOR PORT
ELIZABETH, SOUTH AFRICA.

By Arkell & Douglas.—10 packages Shellers, 1 case Hardware, 2 cases Electric Machinery, 9 boxes Sash-Weights, 2 cases Store Trucks, 1 case Stuffers, 1 box Hardware, 1 bale Sash-Cord, 12 cases Scales, 1 case Forks, 6 cases Handles, 10 cases Picks, 5 cases Hatchets, 20 cases Axes, 1 bundle Sash-Cord, 25 bundles Sash-Weights, 166 Bundles Agricultural Implements, 2 boxes Parers, 3 cases Traps, 1 box Nails, 1 box Oil-Stoves, 2 boxes Hardware, 1 case Cages, 1 bundle Forks, 8 crates Churns, 12 cases Axes, 2 cases Agricultural Implements, 12 boxes Clothes-Pins, 12 packages Carriage-Ware, 1 Iron Safe, 2 cases Sewing-Machines, 1 case Handles, 2 boxes Shade-Rollers, 1 case Braces, 1 case Lawn-Sprinklers, 3 cases Choppers, 1 bundle Sash-Cord, 22 boxes Sash-Weights, 20 crates Shellers, 6 crates Churns, 3 cases Sewing-Machines, 2 cases Handles, 5 cases Hatchets, 20 nests Trucks, 10 cases Scales, 5 cases Axle-Grease, 2 cases Axes, 1 case Handles, 75 cases Axes, 20 crates Stoves, 20 boxes Fittings, 11 racks Churns, 3 racks Ladders, 10 boxes Clothes-Pins, 6 bundles Pails, 6 boxes Ranges and 5 packages Fixtures, 22,500 pounds Wire, 32 cases Handles, 10 cases Tools, 3 cases Sewing-Machines, 171 packages Carriage-Ware, 1 case Forks, 6 cases Hardware, 3 cases Brooms, 130 kegs Nails, 4 cases Wagons, 13 cases Clocks, 6 cases Meat-Cutters, 6 cases Picks, 4 cases Handles, 47 cases Agricultural Implements, 2 bundles Sash-Weights, 30 cases Axle-Grease, 2 cases Choppers.

PER BARK CLAN MACLEOD, JULY 2, 1889, FOR
DUNEDIN, NEW ZEALAND.

By Arkell & Douglas.—2 cases Whips, 18 bundles Wash-Boards, 9 boxes Nails, 13 packages Tools, 8 packages Hardware, 7 packages Carriage-Ware, 16 Stoves, 3 crates Stoves, 10 packages Hardware, 11 packages Edge Tools, 46 packages Carriage-Ware, 2 cases Harness, 1 case Whips, 1 case Curry-Combs.

By W. H. Crossman & Bro.—12 dozen Pails, 6 dozen Hatchets, 12 nests Tubs, 19 packages Lamp Goods, 1 gross Lamps, 3 packages Tubs.

By A. S. Lascelles & Co.—400 gross Crayons, 27 packages Lamp Goods, 3 packages Toys, 3 packages Lamp-ware.

By H. W. Peabody & Co.—76 dozen Handles, 3 cases Agricultural Implements, 20 dozen Wash-Boards, 7 packages Carriage-Ware, 44,800 pounds Barb-Wire, 44,800 pounds Barb-Wire, 1 case Plated-Ware, 5 cases Edge Tools, 5 crates Churns, 5 cases Agricultural Implements, 6 dozen Handles, 1 case Agricultural Implements, 3 cases Agricultural Implements, 2 cases Hardware, 300 pounds Nails, &c., 1 case Wringers, 17 reels Barb-Wire.

By R. W. Forbes & Son.—30 packages Toys, 24 dozen Velocipedes, 50,000 Pencils, 7 packages Hardware, 2 gross Lemon-Squeezers, 2 cases Wire Goods, 2 packages Plated-Ware, 8 packages Household Utensils, 36 cases Sewing-Machine-Oil, 2 cases Toys, 3 cases Sash-Cord, 130 dozen Brooms, 25 dozen Wash-Boards, 2 dozen Churns, 9 1/2 dozen Hoes and Rakes, 300 pounds Horse-Nails, 5 dozen Churns, 3 boxes Hardware, 9 dozen Velocipedes, 2 gross Egg-Beaters, 2 cases Toys, 3 cases Toys and Irons, 300 gross Paper Caps, 8 cases Crayons, 2 cases Hardware, 8 dozen Axe Handles, 40 dozen Handles.

By F. B. Wheeler & Co.—2 sets Harness, 1 dozen Hardware, 7 cases Carriage-Ware, 4 packages Hardware, 3 cases Hardware, 1 case Machinery, 1 box Hardware, 3 packages Hardware, 1/2 dozen Wrenches, 26 Pumps, 24 Iron Buckets, 43 packages Clocks, 4 dozen Whips, 6 dozen Harness, 1 box Hardware, 1 dozen Hardware, 3 cases Hardware, 1 case Wagons, 2 packages Wheels, 2 cases Wagons, 1 case Carts, 1 case Wagons, 1 case Wagons.

By R. W. Cameron & Co.—760 pounds Axles, 1480 pounds Axles, 103 packages Dairy Goods, 55,887 pounds Barb-Wire, 5 gross Shade-Rollers, 21 rolls Sand-Paper, 1 dozen Hardware, 100 feet Cotton Belting, 15 gross Scroll-Saws, 1 case Hardware, 2 dozen Handles, 10 cases Stoves, 1 dozen Squares, 1 1/2 dozen Wringers, 18 dozen Handles, 4 dozen Shovel Handles, 5 cases Hardware, 2 1/2 dozen Sad-Irons, 4 cases Hardware, 1 bale Sash-Cord, 5 packages Hardware, 2 gross Shade-Rollers, 6 dozen Egg-Beaters, 6 nests Tubs, 50 pounds Stone, 3 dozen Forks, 1 case Household Utensils, 9 Pumps, 1200 pounds Manila Cordage, 18,000 Roofing-Slate.

By Strong & Trowbridge.—2 cases Tools, 1 case Scythe-Snaths, 1 case Rakes, 1 case Hoes, 3 cases Hatchets, 1 case Wringers, 4 cases Tacks, 1 case Hoes, 1 case Tools, &c., 1 case Fork and Rake Handles, 1 case Tin-Ware, 1 case Wagon-Jacks, 8 cases Handles, 2 cases Saws, 1 case Tools, 2 cases Castings.

By Chas. Brewer & Co.—24 cases Handles, 5 cases Agricultural Implements, 1 hoghead Pumps, 11 cases Horse Nails, 4 cases Tools, 4 cases Hardware, 5 packages Lamp-Ware, 1 case Flint-Paper, 20 cases Handles, 1 case Hardware, 1 case Tools, 1 Stove, 6 cases Agricultural Implements, 3 cases Hardware, 1 case Flint-Paper, 3 cases Carriage Hardware.

By H. W. Peabody & Co.—90 packages Agricultural Implements.

By Ansonia Clock Company.—29 boxes Clocks, 14 boxes Clocks.

PER BRIG BUDA, JULY 3, 1889, FOR PORT
NATAL, SOUTH AFRICA.

By C. Walser.—40 Plows.

By H. W. Peabody & Co.—30 cases Hardware, 300 dozen Handles, 1 case Agricultural Implements, 1 Gas-Machine, 10 nests Trucks, 6 cases Agricultural Implements.

By Corner Bros. & Co.—2 gross Blacking, 30 dozen Brooms, 198 cases Tools.

By Marcial & Co.—10 dozen Handled Axes, 2 dozen Handled Hatchets, 20 dozen Hatchets, 1500 pounds Horseshoes, 4500 pounds Nails, 350 Plow-Handles, 6 dozen Hatchets, 500 Broom-Handles.

By W. H. Crossman & Bro.—105 dozen Brooms, 6 dozen Hatchets, 5027 pounds Sisal Rope, 30 dozen Axes, 30 dozen Picks, 10 dozen Axes, 10 Washing-Machines, 1 dozen Cultivators, 147 cases Plow Parts, 30 cases Plow Parts, 6 dozen Hatchets, 6 dozen Hatchets, 24,000 pounds Barb-Wire, 12 dozen Brooms, 19 cases Plow Parts, 1 case Curry-Combs, 6 dozen Hatchets.

REVIEW OF THE WHOLESALE MARKET IN PAINTS AND OILS.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

Animal and Vegetable Oils.

The market has experienced but little change the past week. Transactions embrace no movement of stock that contrasts a great deal with what is customary at this season of the year and values have undergone moderate variation only. Lard-Oil is weaker and Menhaden and Sperm products a trifle lower, but, with these exceptions, prices stand practically as they were a week ago.

Linseed-Oil.—City crushers adhere firmly to the prices that have ruled the past two or three weeks and report a very good trade. There has been no change in the seed market that would foreshadow cheaper Oil in the near future, and an advance of, say, 2¢ on current prices would be apt to lead to importations from England. Hence a very even market and little or no change in the statistical position.

Lard-Oil.—Cheaper raw material, rather freer offers of Oil and a smaller demand have combined to weaken the market. The most favored brands of City Present-Make Prime are now offered at 53¢, and a good article can be had at 1¢ less in moderate-sized lots. These prices are relatively high compared with those ruling for other lubricants and the cost of raw material.

Sperm-Oil.—The arrival here of 700 barrels and the fact that 800 barrels more will soon be received has weakened the market for crude Oil somewhat. The latter fact, in turn, has led to a reduction of 1 @ 2¢ on the manufactured product, revised quotations for which will be found in our price-current. About 600 barrels of crude have been sold, 500 barrels of which went for export.

Menhaden-Oil.—Crude Oil has been selling to a fair extent at from 21¢ for dark up to 23¢ for light colored. Exporters have taken nearly, if not quite, 1000 barrels. The Pressed and Bleached product are quoted somewhat lower, and a further reduction has been made on Bank and Straits. Present prices are low, and discount anything short of a phenomenally large catch of fish this season.

Whale-Oil.—There has been no important change on either the crude or manufactured Oils, but the arrival of some 800 barrels here has a rather unfavorable influence. Transactions are just now chiefly of a jobbing nature and moderate in volume. Of crude about 300 barrels were taken by a home buyer.

Cotton-Seed-Oils.—Exporters have purchased probably 900 to 1000 barrels medium quality Summer Yellow Oil, paying 41¢ @ 43¢ per gallon. Those prices are about 3¢ below what is asked home-trade buyers for similar stock. The home demand is slow and chiefly for small quantities. Summer White, Winter Yellow and the crude Oil are slow of sale. Of crude some 700 to 800 barrels have been worked off.

Cocoonut-Oil.—There have been two arrivals, embracing about 1000 barrels all told, but the greater portion had been sold previously, and most holders are firm at previous prices for stock in store. Some lots of Ceylon, however, were offered at 1½¢ decline.

Olive and Palm Oils.—Are very firmly held, owing to the "bullish" character

of reports from the foreign market, but neither article is selling in other than moderate-sized lots at the present time.

Paints and Colors.

The market for Paints and Colors displays few features that differ in any remarkable degree from those which characterized the trade a week ago. Business has not changed in character or volume and the variations in prices have been narrow, while the situation seems to be bare of influences that would give either buyers or sellers any decided advantage. Opinions are divided as to the endurance of the White-Lead Trust, and there is consequently a feeling of uncertainty regarding future prices for the pigment and for by-products of the corroding establishments. The Paris Green Association prices, too, are looked upon as being artificially bolstered and higher than the current figures for competing Greens would justify. Grinder's Colors are not better than barely steady, and Clays, Chalk and Whiting look rather weak.

White Lead.—Sales have been running chiefly on moderate-sized lots of small packages adapted for the retail trade. The large consumers and jobbers are indifferent pending some modification of rebates or alteration in prices which, it is thought, may be made at a meeting of the trust to be held in a short time. For the present the prices and terms remain as quoted in our price-current.

Zincs.—In American Zincs trade has been strictly of a jobbing character and moderate all told. The offerings are merely fair, however, and previous prices for the various grades seem to be well maintained. Foreign Zincs remain very firm, owing to high cost in the European markets, but are rather quiet at the moment.

Colors.—The advance in the price of Quicksilver Vermilion to the basis of 65¢ for bulk seems to be quite general and the market is firm, but no brisker. Other Reds just about hold their own in prices, but are quiet. In Greens, Browns, Blues and Blacks there is merely the routine trade, with prices practically the same as ruled last week.

Miscellaneous.—There have been arrivals of upward of 6000 tons of Chalk, which coming as they did upon a heavily stocked market, resulted in prices breaking to \$2 per ton for large lots from vessel. Cliff-stone Paris White is also rather weak, with \$1.10 an extreme outside price for best qualities and 90¢ accepted for common. American is also in buyers favor.

Wholesale Prices.

NEW YORK, July 31, 1889.

Animal and Vegetable Oils.

Linseed, City, raw.....per gal	60	61
" " "boiled.....	58	59
" " "Western, raw.....	58	59
Lard, City, Extra Winter.....	55	56
" " "Prime, present make.....	55	56
" " "Extra No. 1.....	47	48
" " "No. 1.....	42	43
" " "Western, prime.....	52	53
Cotton-seed, Crude, prime.....	36	37
" " "off grades.....	30	35
" " "Summer Yellow, prime.....	46	47
" " "off grades.....	40	45
Sperm, Crude.....	65	66
" " "Natural Spring.....	68	69
" " "Bleached Spring.....	73	74
" " "Natural Winter.....	75	76
" " "Bleached Winter.....	80	81
Whale, Crude.....	38	39
" " "Natural Winter.....	45	46
" " "Bleached Winter.....	47	48
" " "Extra Bleached Winter.....	49	50
Sea Elephant, Bleached Winter.....	54	55
Menhaden, Crude, Sound.....	22	23
" " "Crude, Southern.....	21	22
" " "Light Pressed.....	27	28
" " "Bleached Winter.....	34	35
" " "Extra Bleached.....	38	39
Tallow, City, prime.....	50	51
" " "Western, prime.....	49	50
Cocoonut, Ceylon.....	54	55
" " "Cochin.....	61	62
Cod, Domestic.....	31	32
" " "Foreign.....	34	35
Red Elaine.....	36	37
Red Saponified.....	43	44
Bank.....per gal	25	26
Straits.....	20	21
Olive, Italian, bbls.....	68	69
Neatsfoot, prime.....	62	63
Palm, prime, Lagos.....	65	66

Mineral Oils.

Black, 20 gravity, 25 @ 30 cold test, per gal	8	9
" " "summer.....	8½	9½
Cylinder, light, filtered.....	15	16
" " "dark.....	14	15
" " "steam refined.....	10	11
Paraffine, 23½ @ 24 gravity.....	11	12
" " "25.....	10	11
" " "28.....	8½	9
" " "red, 21 @ 22 gravity.....	14	15
" " "22½ @ 23.....	12	13

Paints and Colors.

Barytes, Prime White.....	21.50	22.00
" " "American Refined.....	18.00	18.50
" " "No. 1.....	16.00	16.50
" " "No. 2.....	14.00	14.50
" " "off-color.....	12.00	12.50
Blue, Celestial.....	5½	6
" " "Chinese.....	45	50
" " "Prussian.....	20	25
" " "Ultramarine.....	7	8
Brown, Spanish.....	3½	4
" " "Vandyke, American.....	3	3½
" " "English.....	6	8
Black, American Drop.....	8	10
" " "English.....	12	14
" " "Frankfort.....	5	18
Black, Lamp, common.....	12	18
" " "medium.....	19	25
" " "prime.....	27	33
Carmine, No. 40, in bulk.....	3.10	3.20
" " "in boxes or barrels.....	3.30	3.40
Chalk, in bulk.....	2.00	2.50
" " "in bbls.....	2.25	2.50
China Clay, English.....	13.50	14
" " "Southern.....	10.00	11.50
Cobalt Oxide, prep'd.....	2.00	2.50
" " "black.....	2.60	2.80
" " "less.....	2.05	2.25
Crocus Martius, English.....	1½	2½
" " "American.....	1½	2½
Green, Paris, in bulk.....	20	25
" " "170 @ 175 lb kegs.....	20½	25½
" " "small packages.....	22	25
" " "Chrome, ordinary.....	8	11
" " "extra.....	12	13
" " "pure.....	22	25

REBATES, &c.—Paris Green.—Rebates to buyers of 500 to 1000 lb during season, ½¢ per lb; to buyers of 1000 to 2000 lb, 1¢; to buyers of 2000 to 4000 lb, 1½¢; to buyers of 4000 to 10,000 lb, 2¢; to buyers of 10,000 lb and over 2½¢. Buyers of 5 tons or over at one time receive an additional ¼¢ per lb.

Lead, American White, dry..... 6¼ @ 7

" " "in oil..... 7 @ 7½

" " "Red..... 6¼ @ 7

Litharge, in barrels..... 6¼ @ 7

" " "500 lb lots..... 7 @ 7½

" " "smaller..... 7½ @ 8

REBATES, &c.—White Lead.—Rebate on purchases of 500 lb and over, if paid for within 60 days of date of invoice; terms, 60 days or a discount of 2½¢ if payment within 15 days from date of invoice. Extra rebate of ½¢ per lb, payable July 1 and December 31 to buyers of a total of 10 tons pure Lead during the year.

Litharge.—Rebate of ½¢ per lb for cash in 60 days and 2½¢ additional for cash in 15 days.

Ocher, Rochelle..... 1.35 @ 1½

" " "French Washed..... 1½ @ 2½

" " "German Washed..... 1½ @ 3

" " "American..... 8½ @ 14

Orange Mineral, English..... 9 @ 9½

" " "French..... 9 @ 9½

" " "German..... 8½ @ 9½

" " "American..... 8 @ 8½

Paris White, English Cliffstone..... 90 @ 1.10

" " "American..... 70 @ 80

Red, Indian, English..... 5½ @ 7

" " "American..... 2 @ 6

" " "Turkey..... 9 @ 14

" " "Tuscan..... 9 @ 11

" " "Venetian, American..... 90 @ 1.25

" " "English..... 1.00 @ 1.45

Sienna, Italian, Burnt and Powd..... 1½ @ 6½

" " "Burnt Lumps..... 1½ @ 3½

" " "Raw, Powdered..... 6 @ 6½

" " "Lumps..... 2 @ 3½

" " "American, Raw..... 1½ @ 1¾

" " "Burnt and Powdered..... 1½ @ 1¾

Talc, French..... 1½ @ 1¾

" " "American..... 1 @ 1¼

Terra Alba, French..... 72½ @ 80

" " "English..... 80 @ 85

" " "American No. 1..... 70 @ 75

" " "American No. 2..... 38 @ 40

Umber, Turkey, Bnt. and Powd., per lb..... 3½ @ 4

" " "Burnt Lumps..... 2½ @ 3

" " "Raw and Powdered..... 3½ @ 4

" " "Raw Lumps..... 2½ @ 3

" " "Burnt, American..... 1½ @ 1¾

" " "Raw..... 1½ @ 1¾

Yellow, Chrome..... 10 @ 25

Vermilion, American, Lead..... 11½ @ 13

" " "Quicksilver..... 65 @ 68

" " "English Imported..... 82 @ 85

" " "Imitation English..... 8 @ 25

" " "Trieste..... 75 @ 77

" " "Chinese..... 88 @ 90

Whiting, Common..... 40 @ 45

" " "Gilders..... 55 @ 65

Zinc, American, dry..... 44 @ 45

" " "French, Red Seal..... 6½ @ 7

" " "Green Seal..... 7½ @ 8

" " "V. M. X..... 6 @ 6

" " "Antwerp, Red Seal..... 6½ @ 7

" " "Green Seal..... 7 @ 7

" " "German, L. Z. O..... 5¼ @ 5

" " "V. M. in Poppy Oil, & Seal, lots of 1 ton and over..... 9½ @ 10½

" " "lots less than 1 ton..... 9½ @ 10½

Zinc, V. M. in Poppy Oil, Red Seal, lots of 1 ton and over..... 8½ @ 9

" " "lots less than 1 ton..... 8½ @ 9½

DISCOUNTS.—French Zinc.—Discounts to buyers of 10-bbl. lots of one or assorted grades, 1¢; 25 bbls, 2¢; 50 bbls, 4¢. No discount allowed on less than bbl. lots.

Colors in Oil.

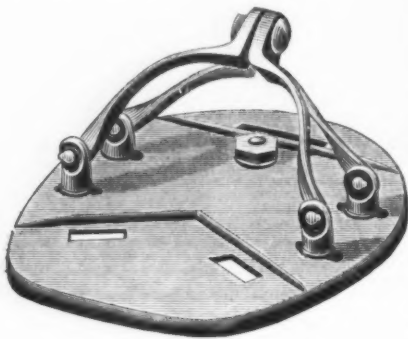
Blue, Chinese.....	35	40
" " "Prussian.....	20	45
" " "Ultramarine.....	12	18
Brown, Vandyke.....	7	12
Green, Chrome.....	8	13
" " "Paris.....	16	18½
Sienna, Raw.....	7	13
" " "Burnt.....	7	13
Umber, Raw.....	7	10
" " "Burnt.....	7	10

Glue.

Low Grade.....	8	10
Cabinet.....	12	14
Medium White.....	13	15
Extra.....	17	20
French.....	9	20
English.....	10	15
Irish.....	12	15

Soft-Ground Horseshoe.

This article, represented in the accompanying engraving, is manufactured by L. Brigham, Decatur, Mich. It is described as made of metal of light thickness and weight, and has a vertical flange entirely around the edge, the flange being highest at the toe of the shoe. The upper surface of the shoe and the lower edge of the flange are thus on converging planes toward the heel of the shoe. By this means, it is pointed out, a horse can better cling to slippery turf and is less liable to slip laterally, while the foot stands in an easy and natural position. The raised ribs serve to strengthen the shoe, employing lighter metal and forming rests for the foot, thus obviating the uneven position of the foot caused by the heads of the nails which secure the calk-shoe to the foot. The six-cornered burr shown in the illustration comes inside of the toe of the shoe on the foot, thus preventing the foot from slipping back and doing away with the necessity of calks, though the plate is provided with slots for calks when a horse is rough-shod.

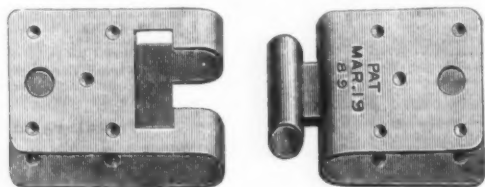


The Soft-Ground Horseshoe.

It will thus be seen that the plates may be used on a foot in any condition without necessitating a resetting of the shoe, as in the old plates. Two nails are secured over the foot by a bolt. Slots are made through the shoe to receive the calks. The manufacturer mentions that with this shoe a horse is enabled to walk over soft, boggy or mellow land, where it would hardly be possible for him to go under ordinary circumstances, thus enabling the farmer to cultivate ground that would otherwise be untillable. It is also stated that on muck, marsh or alluvial soils where a man can travel a horse shod with these shoes can plow, harrow or draw an ordinary load without inconvenience. Its utility in rolling meadows and wheat grounds in early spring before the ground becomes hard is also alluded to.

Avery's Detachable Belt-Fastener.

The W. G. Avery Mfg. Company, Cleveland, Ohio, are putting on the market the belt-fastener shown in the ac-

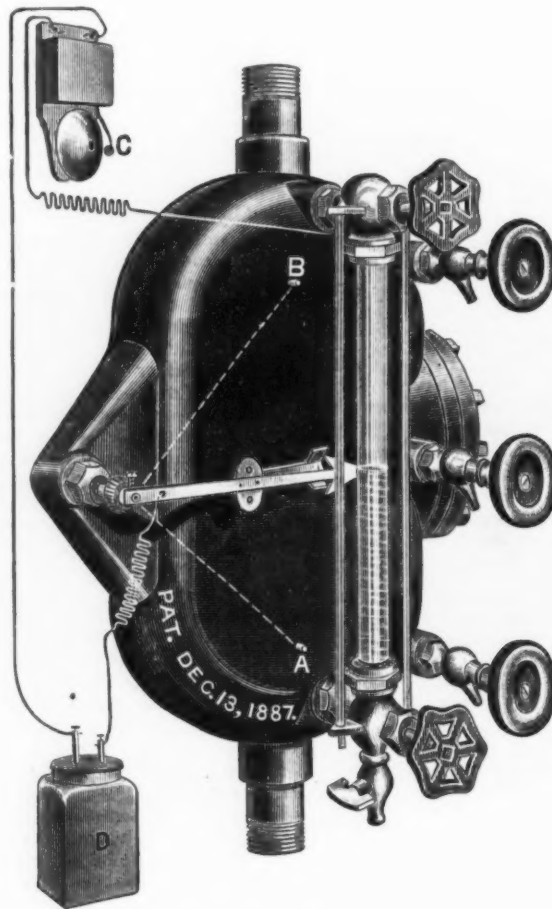


Avery's Detachable Belt Fasteners.

companying illustration, which represents it detached. The fastener is described as stamped out of the best quality of cold-rolled steel, and its practicability, durability and strength are emphasized. The manufacturers state that the annoy-

ance accompanying the employment of belt-lacing or belt-hooks is not encountered in the use of this fastener. Forming as it does a clamp-vise on the belt, it forces the teeth sufficiently far into the belt to overcome wear and tear at the rivet-hole and will not tear out the ends of any kind

position of the water in the boiler. The fact of low water is announced when the float and index arrive at the position marked A, when the index will make the connection or complete the circuit and sound the alarm on bell C, which will continue until sufficient water is put in



Electric Automatic Water-Gauge.

of belting. This fastener permits the belt to pass smoothly over any size pulley and works as well on cross as on straight belts. It is claimed that it will wear longer and run with less noise and jar than any other fastener. The saving of time in the use of this fastener, as well as the low price at which it is sold, are also referred to. The goods are made in two sizes, Nos. 28 and 30, the former being $\frac{3}{4}$ inch and the latter 1 inch. They are packed 50 pairs in a box.

Electric Automatic Water-Gauge.

This combined gauge and alarm is automatic and positive in its action. The arrow or index is attached to a copper float, which is open to the atmosphere through the hollow rock-shaft to which the index is attached, and can never be-

the boiler to raise the float and index and break the connection. High water would be announced if the float and index should take the position B, shown by dotted lines, when the same alarm will sound, and continue until the water is lowered to the proper level. The alarm bell C can be placed in the engine-room or such positions as desired. One or more bells can be attached, and they may be placed at such places as will best suit the situation. The battery D can be placed in any convenient position and will require no attention. The apparatus will sound positively both the high and low water alarm, and there is little or no chance of such derangement as will interfere with its correct working. This automatic water-gauge column is made by Lovegrove & Co., of 143 North Third street, Philadelphia, Pa.

It is stated that factories are now being built in South Africa for producing the various machine tools and appliances required for use in the colony. In the early part of the present year the very first locomotive which had been built in the British colony passed successfully through its trial at Durban. This locomotive was built in the workshops of the Natal Government. It is a bogie engine with four coupled wheels. This is intended as the first of numerous similar productions, in view of the extraordinary development anticipated in the iron roadways of Southern Africa.

There is much opposition in Canada to the proposed expenditure of \$12,000,000 for canal enlargement.

come inoperative owing to the float filling with water, as is the case if they have no opening or vent to allow the condensation to escape. The index and float being parallel, the index following the movement of the float will accurately determine the

Metallic Hanger for Venetian Blinds.

In Figs. 1 and 2 of the illustrations presented herewith we show a metallic hanger for Venetian blinds which has been placed upon the market by James G. Wilson, 907 Broadway, New York City. This hanger is designed as a permanent substitute for the linen tape ladder now in use, and being constructed of metal will not break nor wear out. In Fig. 1 a front view is presented, while in Fig. 2 the hanger is shown in perspective. From an inspection of the engravings it will be noticed that the hanger is beautifully engraved, and being finished in oxidized silver, old brass or ormolu, presents a very



Wilson's Metallic Hanger.—Fig. 1.—
Front View.

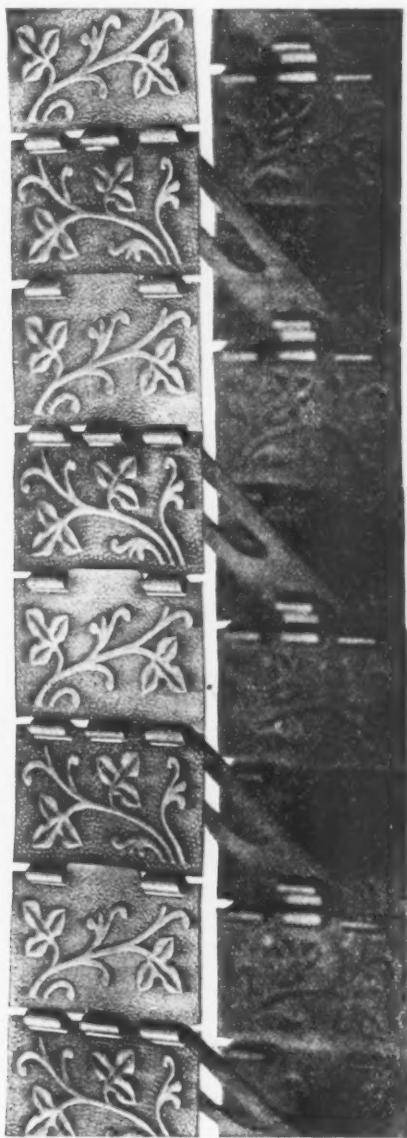


Fig. 2.—Perspective View.

fine appearance. Blinds which are fitted with these ladders fold up, it is said, more regularly and into a smaller space than would otherwise result.

Carpet-Sweepers as Lawn-Mowers.

He looked exactly like a man who knew what he wanted, and had the money to pay for it, as he entered a Sixth avenue hardware store and confidently remarked:

"Being I had to come in on other business I thought I might as well take a carpet-sweeper home with me. You have all kinds and prices, I suppose?"

"No, sir, we do not deal in them. You'll have to go to the carpet stores."

"Don't keep carpet-sweepers?"

"No, sir."

"Why, they are right in your line."

"Beg pardon, sir, but they belong to the carpet trade."

"Never saw one in a carpet store in my life."

"Can't help it, sir," said the clerk.

The man walked slowly on for half a square and turned into another hardware store. This time he wasn't so sure what he wanted.

"I want to see some carpet-sweepers," he said to the first clerk who came forward.

"Don't keep 'em," was the brusque reply.

"Well, that's funny. I've always seen them at hardware stores."

"They may keep 'em in some country town, but we couldn't sell 'em here. Carpet store on the next square."

"And I can mow my lawn with that?"

"No, sir. A carpet-sweeper is to sweep carpets, and lawns are cut with lawn-mowers."

"Say!" whispered the stranger, as he advanced and dropped his voice to a whisper, "have you a fool-killer in this store?"

"Not at present."

"Is your kicker around?"

"Not to-day."

"Well, I'll go out and let an ash-cart run over me or trade myself off for old junk, for I'm the biggest idiot in the State of New York! I wanted a lawn-mower and this is the fourth place I've struck for a carpet-sweeper. So long, old boy; it's fair laugh. Good-bye. See you when I want a grindstone."

The Right to Use Door and Window Screens.

An interesting point of law, according to the *New York Tribune*, is being raised in Connecticut by a woman who is suing a neighbor for damages alleged to have resulted from said neighbor placing fly-screens in his windows, thereby causing a greater number of flies to enter, come into, invade, and take up their residence in said plaintiff's house, to the great and painful injury of her peace of mind. The claim set up is that under the common law and certain special statutes made and provided every Connecticut family is bound to provide for its quota of flies and that the said defendant by the placing, or the causing to be placed, of the said screens, bars, wire-cloth, net-work, fly-excluders, insect-discouragers, or by whatsoever other name, title or appellation they may be known, thereby fails to provide for the flies, driving them elsewhere and raising the pro rata of the community and especially of the defendant, owing to or arising from, the proximity, or nearness, of the said, or before-mentioned, plaintiff's house to the defendant's; and the said plaintiff prays that an injunction issue directing the said defendant to remove from his windows and doors all obstructions to the free ingress and egress of flies of all sizes whatsoever at all hours of the day and night; and it is further prayed that damages be awarded the said plaintiff in the sum of \$1000, &c. We quote from the plaintiff's petition as above, feeling certain that it is a case in which people will be interested, especially at this time of the year. Among the members of the legal profession especially it will doubtless attract much attention, and we trust that the necessarily condensed and hasty summary of the points which we present will be sufficient to give them an idea of the case. It is, we think, something new in jurisprudence—there is no precedent to be cited at the trial, and whatever the decision may be, it will immediately become a modern instance which will gradually fade into a wise saw.

The plan of defense of the party sued has not yet been outlined. It is stated that under the wise and equitable Connecticut law he cannot deny that it is his duty to provide for his share of the village flies; but it is hinted that he will attempt to throw the burden of proof on the plaintiff by setting up the plea that no members of his apportionment of flies can be found in the plaintiff's house, they having, when they discovered that they were barred out from their rightful place, adjourned in a body to a German beer garden about two miles distant. This line of defence and the unavoidable rebuttal will, of course, render necessary the identification of the flies in open court, those found in the plaintiff's house as well as those at the beer garden. Should the proprietor of the beer garden refuse to give up his flies, or should he secure their release by a writ of *habeas corpus* or

The man tried a third hardware store with no better success. Indeed, when he stated his convictions that no first-class carpet house ever dealt in carpet-sweepers, the clerk said:

"Better let it go and hang to the broom. You probably wouldn't know how to work one, anyhow."

Then the man moved on to a carpet house. There were 50 carpet-sweepers artistically grouped around the door, and he stood in the midst of them and inquired:

"Got any carpet-sweepers?"

"Certainly, sir; 15 different patents. Do you prefer any particular make? Here is the latest patent."

"Do you call that a carpet-sweeper?" loudly demanded the man.

"Of course I do. Don't you?"

something of that sort, it will greatly complicate matters, and may bring on long and bitter litigation. The apprehension of the flies by the sheriff will, it is suspected, require some skilful work on the part of that officer, and it is said that he has already secured detectives to assist, none of those employed on the Cronin murder, however, being engaged.

The outcome of the case will be awaited with interest. The sympathies of the people of Connecticut are reported as being largely with the plaintiff, and it is said that unlimited capital has been placed at her disposal to fight the matter to the bitter end. The legality of fly-screens has long been questioned by many people in that State, and now that a chance to test it has arisen they are determined that the popular side shall not lack for funds or encouragement. It is whispered that, if the plaintiff is successful, a combined attack will be made on the people who place fly-nets on their houses and on those misguided women who, attaching a quantity of strips of paper to a long stick, deliberately "shoo" their flies out of their houses on to a long-suffering and already fly-supplied public.

Niagara Stamping and Tool Company.

Conspicuous among the manufacturing establishments of Buffalo, N. Y., and occupying an important position in the field of industry devoted to the production of sheet-metal-working machinery is that of the Niagara Stamping and Tool Company. The plant of this concern is located at the corner of Randall and Superior streets, Buffalo, and gives employment to nearly 150 hands all the year round. The buildings include a fine four-story factory, with blacksmith forge, stamping annex and other accessories, including a spacious fire-proof vault for the storage of patterns, of which the firm own many dollars' worth in active use. The factory is situated directly opposite the large brick factory of Heinz & Munschauer. The office is on the ground-floor in the northeast corner of the building. The first floor is devoted to the manufacture of power and foot shears, forming-rolls, foot-presses, power-presses and special machinery of large build, numbers of which are at all times in process of manufacture. Behind this is the stamping-room, where coal-vase tops and bottoms, bird-cage bottoms, cooler tops and bottoms, besides many other specialties which the firm are called upon to manufacture, are turned out. The blacksmith shop is fitted up on the most improved plan and is well supplied with steam-hammers, rolls and everything necessary for the vigorous prosecution of this branch of the business. The second floor is devoted entirely to the manufacture of dies, in which the firm have a steady and continuous business. Leading from this floor is a room devoted to light stamping and the manufacture of certain kinds of hardware specialties on which the firm are employed the year round. The third floor is devoted chiefly to the manufacture of tinner's tools and machines, and is replete with all the latest devices for milling, boring and shaping such as the demands of the business of the present day require. The fourth floor is utilized as a stock-room, pattern-shop, &c., and together with the paint-shop, furnaces for drying same, shipping department, boiler and engine room, make a complete plant, which enables the proprietors to prosecute their business with vigor and dispatch.

Their specialty is machinery for working sheet-metal and wire, their squaring-shears meeting with a marked success. In addition to the manufacture of tinner's tools and machines the firm deal largely in canning outfits for canning factories

and are extensively engaged in the manufacture of presses and dies. In July, 1888, Mr. Stark retired from the business and Lantz Bros., the noted soap manufacturers, entered into a copartnership with Heinz & Munschauer and now constitute the members of the firm.

American Railway Master Mechanics

The American Railway Master Mechanics' Association have appointed the following committees to carry on the work of investigating, and other business during the ensuing year:

1. Exhaust-pipes, nozzles and steam passages; best form and size in proportion to cylinders: C. F. Thomas, A. W. Gibbs, Ross Kells, John A. Hill.
2. Compound locomotives; their efficiency as compared with simple engines: J. Davis Barnett, John Player, H. D. Garrett, F. W. Dean.
3. Testing-laboratories, chemical and mechanical: Philip Wallis, George Gibbs, G. W. West, D. L. Barnes.
4. Efficiency of the link, as compared with other valve motions: James M. Boon, David Clark, H. Tandy, John A. Coleman.
5. Advantages and disadvantages of placing the fire-box above the frames: Fred B. Griffith, James Macbeth, W. A. Foster, L. F. Lyne.
6. Relative value of steel and iron axles: John Mackenzie, J. S. Graham, John S. Cook, Thomas Shaw.
7. Brick arches in locomotive fire-boxes: T. W. Gentry, Allen Cooke, L. C. Noble, W. A. Smith.
8. The best means and the economy of preserving locomotive tanks from corrosion: W. J. Robertson, Albert Griggs, O. Stewart, Jerome Wheelock.
9. Purification or softening of feed-water: W. T. Small, Harvey Middleton, A. W. Quackenbush, John W. Hill.
10. The best form and size of axles for heavy tenders: W. Swanston, W. Garsang, James Maglenn, L. R. Pomroy.
11. The present status of the "automatic car-coupler question," and whether this association can indorse the action of the M. C. B. Association in recommending the vertical plane type as a standard, from a mechanical stand-point: John Hickey, G. W. Rhodes, Sanford Keeler, M. N. Forney.

London, too, clamors for a big world's fair, to be held two years from now, not because she is jealous of the contemporary Parisian festival, but for the reason that it is due to herself as "the capital of the greatest of empires." A London correspondent says: "London has the strongest claims for the honor of acting as the world's host at the next gathering of the representatives of all nations, and it is well to examine some of these reasons from her own point of view. It might be folly for any other European capital to undertake a 'world's fair' two years after the present Paris Exhibition, but it will not be folly for London to do so. Forty years will have passed in 1891 since the opening of Paxton's gigantic glass palace in Hyde Park, and England has a vast deal more to show now than she had then. The empire has extended; the colonies have immensely developed. Practically, the Australian colonies have come into life since the exhibition of 1851, at which time the province of Victoria had only just been named, and the first gold nugget had only just been found. The resources of the empire can be suggested in 1891 in a manner that will amaze and edify British subjects, and the people of all countries as well."

The attention of our readers is called to the full-page advertisement of the Central Law Directory. This directory gives a

list of attorneys in a great many of the cities and towns of the United States. It often happens that business men have need of the service of an attorney in remote sections of the country, and are at a loss in securing the address of such persons, and this directory may be found of use in these cases. We are assured by the compiler of the list, I. S. Wachob, Esq., of Chicago, that he has taken care to secure the names of reliable and responsible attorneys in every instance.

The Reading Railroad Company are experimenting with an electrical apparatus which, it is claimed, will prevent the drivers of a locomotive from slipping on grades. The arrangement consists of a small dynamo run by the engine. The current generated passes around the drivers and magnetizes the rails at the point of contact.

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CURRENT HARDWARE PRICES.

JULY 31, 1889.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers' prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers' name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers, at the figures named.

Ammunition.—

Caps, Percussion, 1000—	
Flicks & Goldmark's	
F. L. Waterproof, 1-10's.....	50¢
E. B. Trimm'd Edge, 1-10's.....	55¢
E. B. Grnd. Edge, Cent. Fire.....	70¢
1-10's, 70¢	75¢
double Waterproof, 1-10's.....	\$1.40
Musket Waterproof, 1-10's.....	50¢
G. D.....	28¢
S. B.....	30¢

Union Metallic Cartridge Co.	
F. C. Trimm'd.....	50¢
F. L. Ground.....	25¢
Cent. Fire (Grnd.).....	70¢
Dbl. Waterproof.....	1.40
Dbl. Waterproof, in 1-10's.....	1.40
S. B. Genuine Imp.orted.....	45¢
Eley's E. B.....	54¢
Eley's D Waterproof, Central Fire.....	\$1.00

Cartridges.	
Rim Fire Cartridges.....	50¢
Rim Fire Military.....	55¢
Cent. Fire, Pistol and Rifle.....	25¢
Cent. Fire, Military and Sporting.....	15¢
Blank Cartridges, except 22 and 32 cal., additional 10% on above discounts.	
Blank Cartridges, 22 cal., \$1.75.....	2¢
Blank Cartridges, 32 cal., \$3.50.....	2¢
Primed Shells and Bullets.....	15¢
B. B. Caps, Round Ball, \$1.75.....	2¢
B. B. Caps, Con. Ball, Swgd., \$2.00.....	2¢

Primers—	
Berdan Primers, \$1.00.....	2¢
B. L. Caps (for Sturtevant Shells) \$1.00.....	2¢
All other Primers, \$1.20.....	2¢

Shells—	
First quality, 4, 8, 10 and 12 gauge.....	25¢
First quality, 14, 16 and 20 gauge (\$10 list).....	30¢
Star, Club, Rival and Climax brands.....	20¢

Setbold's Comb. Shot Shells.....	
Brass Shot Shells, 1st quality.....	60¢
Brass Shot Shells, Club, Rival, Climax.....	65¢
I X L, 10 and 12 gauge.....	40¢
"Special," 16 gauge.....	30¢
"Special," 10 and 12 gauge.....	40¢
Fowler's Pat.....	35¢

Shells Loaded—	
Standard. List.....	40¢
Wad—	

U. M. C. & W. R. A.—B. E., 11 up, \$2.00.....	2.30
U. M. C. & W. R. A.—B. E., 9&10.....	2.30
U. M. C. & W. R. A.—B. E., 7&8.....	2.30
U. M. C. & W. R. A.—P. E., 11 up, 3.10.....	3.10
U. M. C. & W. R. A.—P. E., 9&10.....	4.00
U. M. C. & W. R. A.—P. E., 7&8.....	4.90
Eley's B. E., 11 up.....	1.75
Eley's P. E., 11 up.....	2.80

Anvils—	
Eagle Anvil, 10¢.....	20¢
Peter Wright's.....	95¢
Armstrong's Mouse Hole.....	95¢
Armstrong's Mouse Hole, Extra.....	1.10
Trenton.....	95¢
Wilkinson's.....	95¢
J. & Riley Carr, Pat. Solid.....	1.10
Moore & Barnes Mfg. Co.....	33¢

Anvil Vise and Drill—	
Millers Falls Co., \$18.00.....	20¢
Cheney Anvil and Vise.....	25¢
Allen Anvil and Vise, \$5.00.....	40¢

Apple Parers—

Advance.....	doz \$4.75
Antrim Combination.....	doz 5.50
Baldwin.....	doz 5.25
Champion.....	doz 7.25
Daley.....	doz 4.00
Eureka, 1888.....	each 17.00
Family Bay State.....	doz 12.00
Favorite.....	doz 5.00
Gem.....	doz 5.25
Gold Medal.....	doz 4.00
Ideal.....	doz 4.00
Improved Bay State.....	doz 30.00
Little Star.....	doz 4.50
Monarch.....	doz 13.50
New Lightning.....	doz 5.50
Oriole.....	doz 4.00
Perfection.....	doz 4.00
Pomona.....	doz 4.00
Rocking Table.....	doz 6.00
Turntable.....	doz 4.50
Victor.....	doz 13.50
Waverly.....	doz 4.00
White Mountain.....	doz 4.50
72.....	doz 4.25
76.....	doz 5.75
78.....	doz 6.50

Augers and Bits—

Douglas Mfg. Co.....	
Wm. A. Ives & Co.....	
Humphreysville Mfg. Co.....	70¢
French, Swift & Co. (F. H. Beecher, Rockford Bit Company).....	
Cook's, Douglas Mfg. Co.....	55¢
Cook's, N. H. Copper Co. 50¢ to 50¢ and 10¢	
Ives' Circular Lip.....	30¢
Patent Solid Head.....	30¢
C. E. Jennings & Co., No. 10, extension lip.....	40¢
C. E. Jennings & Co., No. 30.....	60¢
C. E. Jennings & Co., Auger Bits, set, 32¢ quaters, No. 5, 8, No. 30, \$3.50, 20¢	
Lewis' Patent Single Twist.....	45¢
Jennings' Augers and Bits.....	25¢
Imitation Jennings' Bits.....	60¢
Pugh's Black.....	20¢
Rockford, Jennings' Pattern.....	60¢
Car Bits.....	50¢
L Hommedieu Car Bits.....	15¢
Forstner Pat. Auger Bits.....	10¢

Bollow Augers—

Ives'.....	33¢
French, Swift & Co.....	33¢
Douglas.....	33¢
Bonney's Adjustable, 1/2 doz \$18.....	40¢
Stearns'.....	25¢
Ives' Expansive, each \$4.50.....	50¢
Universal Expansive, each \$4.50.....	25¢
Wood's.....	25¢

Expansive Bits—

Clark's small, \$18; large, \$20.....	35¢
Ives' No. 4, 1/2 doz \$20.....	40¢
Swan's.....	40¢
Stearns, No. 1, \$20; No. 2, \$22.....	35¢
Stearns' No. 2, \$48.....	20¢

Gimlet Bits—

Common.....	gross \$2.75 @ \$3.25
Diamond.....	doz \$1.10.....
Ree.....	25¢
Double Cut, Sheppardson's.....	45¢
Double Cut, Ct. Valley Mfg. Co.....	30¢
Double Cut, Hartwell's, 1/2 doz.....	\$5.25
Double Cut, Douglas.....	40¢
Double Cut, Ives.....	60¢

Bit Stock Drills—

Morse Twist Drills.....	50¢
Standard.....	50¢
Cleveland.....	50¢
Syracuse, for metal.....	50¢
Syracuse, for wood (wood list).....	30¢
Williams' or Holt's, for metal.....	50¢
Williams' or Holt's, for wood.....	40¢

Ship Augers and Bits—

L'Hommedieu's.....	15¢
Watrous.....	15¢
Snell's.....	15¢
Snell's Ship Auger Pat'n Car Bits.....	15¢

Awl and Tool Sets—

Sewing, Brass Fer, 1/2 gr, \$3.50.....	45¢
Pat. Sewing, Short, \$1.00 1/2 doz.....	40¢
Pat. Sewing, Long.....	doz \$1.20
Pat. Peg, Leather Top, 1/2 gr \$10.00.....	45¢
Pat. Peg, Plain Top, 1/2 gr \$12.00.....	45¢

Awls, Brad Sets, &c—

Awls, Sewing, Common.....	1/2 gr \$1.70, 35¢
Awls, Should. Peg, 1/2 gr \$2.45, 40¢	
Awls, Pat. Peg, 1/2 gr 65¢.....	40¢
Awls, Shouldered Brad, 2 1/2 gr.....	45¢
Awls, Handled Brad, 1/2 gr.....	45¢
Awls, Handled Scratch 1/2 gr, \$7.50, 35¢	
Awls, Socket Scratch 1/2 gr, \$10.25, 30¢	

Awl and Tool Sets—

Alken's Sets, Awls and Tools.....	No. 20, 1/2 doz \$10.00.....
Fray's Adj. Tool Hds., Nos. 1, \$12; 2, \$18; 3, \$12; 4, \$9.....	25¢
Miller's Falls Adj. Tool Hds.....	Nos. 1, \$12; 2, \$18.....
Henry's Combination Haft.....	doz \$0.50
Brad Sets.....	No. 42, \$10.50; No. 43, \$12.50.....
Stanley's Excelsior.....	No. 1, \$7.50; No. 2, \$4.00; No. 3, \$5.50.....

Axes—

Makers' and Special Brands—	
First quality.....	doz \$0.00 @ \$0.50
Others.....	doz \$5.50 @ \$7.75

Axle Grease—

Fraser's.....	Keg 1/2 doz 4¢, Pail 1/2 doz 5¢
Fraser's, in boxes.....	doz \$9.50
Fraser's Everlasting, in boxes.....	doz 1.10
Dixon's.....	10¢
Dixon's Everlasting.....	10¢
Lower grades, special brands.....	doz \$5.50 @ \$7.00

Axles—

No. 1.....	4¢
No. 2.....	5¢
No. 3.....	6¢
No. 4.....	7¢
No. 5.....	8¢
No. 6.....	9¢
No. 7.....	10¢
No. 8.....	11¢
No. 9.....	12¢
No. 10.....	13¢
No. 11.....	14¢
No. 12.....	15¢
National Tubular Self-Oiling: Standard Farm (1 to 5) and Special Farm (A1 to A5).....	Less than 10 sets.....
Over 10 sets.....	33¢

Bag Holders—

Spangle's Pat.....	doz \$18.....
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Balances—

Spring Balances.....	50¢
Common 24 lb.....	doz \$1.50.....
Chatillon's Spring Balances.....	50¢
Chatillon's Circular Spring Balances.....	60¢

Bells—

Hand—	
Light Brass.....	70¢
Extra Heavy.....	60¢
White Metal.....	60¢
Silver Chime.....	33¢
Globe (Cone's Patent).....	25¢

Door—

Gong, Abbe's.....	33¢
Gong, Yankee.....	45¢
Gong, Barton's.....	40¢
Crank, Taylor's.....	25¢
Crank, Brooks'.....	50¢
Crank, Cone's.....	10¢

Crank, Connel's.....	20¢
Lever, Sargent's.....	60¢
Lever, Taylor's Bronzed or Plated.....	net
Lever, Taylor's Japanned.....	25¢
Lever, R. E. M. Co's.....	50¢
Pull, Brook's.....	50¢
Pull, Western.....	25¢

Coir—

Common Wrought.....	60¢
Western.....	20¢
Western, Sargent's list.....	70¢
Kentucky, "Star".....	20¢
Kentucky, Sargent's list.....	70¢
Dodge, Genuine Kentucky.....	70¢
Texas Star.....	50¢
Call.....	40¢
Farm Bells.....	30¢
Steel Alloy Church and School Bells.....	40¢

Bellows—

Blacksmiths'.....	60¢
Molders'.....	40¢
Hand Bellows.....	40¢

Belting, Rubber—

Common Standard.....	70¢
Standard.....	70¢
Extra.....	60¢
N. Y. B. & P. Co., Carbon.....	60¢
N. Y. B. & P. Co., Diamond.....	50¢

Bench Stops—

Morrill's.....	doz \$0.50
Hotchkiss's.....	doz \$5.10 @ \$10.10
Woods'.....	No. 1, \$10; No. 2, \$0.25 @ \$0.50
McGill's.....	doz \$3.....

Bits—

Auger, Gimlet, Bit Stock, Drills, &c., see Augers and Bits.	
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Bit Holders—

Extension.	
Barber's.....	doz \$15.00.....
Ives.....	doz \$20.00.....
Diagonal.....	doz \$24.00, 40¢
Angular.....	doz \$24.00, 40¢

Blind Adjusters—

Domestic.....	doz \$3.00, 33¢
Excelsior.....	doz \$10.00.....
Washburn's Self-Locking.....	20¢

Blind Fasteners—

Blackell's.....	doz \$1.00.....
Van Sand's Screw Pat., \$15 1/2 gr.....	60¢
Van Sand's Old Pat., \$15.00 1/2 gr.....	55¢
Washburn's Old Pattern, 1/2 gr.....	\$0.00
Merriman's.....	new list
Austin & Eddy No. 2008, 1/2 gr.....	\$0.00
Security Gravity, 1/2 gr.....	\$0.00

Blind Staples—

Barbed, 1/2 in. and larger.....	doz 7¢ @ 8¢
Barbed, 3/4 in.....	doz 8¢ @ 9¢

Blocks—

Ordinary Tackle, list May 20, 1889.....	40¢
Cleveland Block Co., Mal. Iron.....	50¢
Moore's Novelty, Mal. Iron.....	50¢

Bolts—

Door and Shutter—	
Cast Iron Barrel, Square, &c.....	70¢
Cast Iron Shutter Bolts.....	70¢
Cast Iron Chain (Sargent's list).....	65¢
Ives' Patent Door Bolts.....	60¢
Wrought Barrel.....	70¢
Wrought Square.....	70¢
Wrt Shutter, all Iron, Stanley's.....	60¢
Wrt Shutter, Brass Knob.....	40¢
Wrt Shutter, Sargent's list.....	60¢
Wrt Sunk Flush, Sargent's list.....	55¢
Wrt Sunk Flush, Stanley's list.....	50¢
Wrt B.K. Flush, Com'n.....	55¢

Carriage, Machine, &c.—

Com. list June 10, '84.....	75¢
Genuine Eagle, list Oct. '84.....	75¢
Phila. pattern, list Oct. '84.....	80¢
R. B. & W., old list.....	70¢
Machine, according to size.....	80¢
Bolt Ends, according to size.....	80¢

Tire—

Common, list Feb. 28, '83.....	70¢
Port Chester Bolt and Nut Company.....	70¢
Empire, list Feb. 28, '83.....	70¢
Phila., list Oct. '84.....	82¢
Keystone, Philadel., list Oct. '84.....	80¢
Norway, Phila., list Oct. '84.....	75¢
American Screw Company.....	75¢
Norway, Phila., list Oct. 16, '84.....	80¢
Eagle, Phila., list Oct. 16, '84.....	82¢
Phila., list Oct. 16, '84.....	82¢
Bay State, list Feb. 28, '83.....	70¢
R. B. & W., Philadel., list Oct. 16, '84.....	82¢

Stove and Plow—

Stove.....	65¢
Plow.....	60¢
R. B. & W., Plow.....	65¢

Boring Machines—

Without Augers. Upright. Angular.	
Douglas.....	\$5.50 @ \$6.75.....
Snell's, Rice's Pat. 5.50 6.75.....	40¢
Jennings.....	5.50 6.75.....
Other Machines.....	2.35 2.75.....
Phillips' Patent.....	00 7.50.....

With Augers.....

00 7.50.....	
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Bow Pins—

Humason, Beckley & Co's.....	60¢
Sargent & Co's.....	\$17 and \$18.....
Peck, Stow & W. Co.....	50¢

Braces—

Cards—

Horse & Curry.....10&10&10&10&10
Cotton.....10&10&10&10
Wool.....10&10&10&10

Carpet Stretchers—

Cast Steel, Polished.....\$ doz \$2.25
Cast Iron, Steel Points.....\$ doz \$0.85
Socket.....\$ doz \$1.75
Bullard's.....25&25&10&5

Carpet Sweepers—

Bissell No. 5.....\$ doz \$17.00
Bissell No. 7 New Drop Pan.....\$ doz \$19.00
Bissell, Grand.....\$ doz \$24.00
Grand Rapids.....\$ doz \$24.00
Crown Jewel, No. 1, \$18.00; No. 2, \$19.00; No. 3, \$20.00

Magic.....\$ doz \$15.00
Jewel.....\$ doz \$17.00
Improved Parlor Queen, Nickeled.....\$ doz \$27.00
Japanned.....\$ doz \$24.00

Excelsior.....\$ doz \$22.00
Garland.....\$ doz \$18.00
Parlor Queen.....\$ doz \$24.00
Housewife's Delight.....\$ doz \$15.00

Queen, with band.....\$ doz \$16.00
King.....\$ doz \$30.00
Weed, Improved.....\$ doz \$18.00
Hub.....\$ doz \$16.00

Cog-Wheel.....\$ doz \$22.00
Conqueror.....\$ doz \$22.00
Easy.....\$ doz \$22.00
Monarch.....\$ doz \$22.00

Goshen.....\$ doz \$21.00
Advance.....\$ doz \$18.00
Ladies' Friend, No. 1, \$ doz, \$15.00; No. 2, \$ doz, \$16.00

American.....\$ doz \$15.00
Grand Republic.....\$ doz \$35.00

Cartridges—

See Ammunition.

Casters—

Bed.....\$ Brass.....55&55&10&5
Shallow Socket.....\$ Others.....90&90&10&5

Deep Socket.....\$ 40&10&5
Yale Casters, list May, 1884.....\$ 30&10&5
Yale, Gem.....\$ 60&60&5
Martin's Patent (Phoenix).....\$ 45&10&5

Payson's Anti-Friction.....\$ 30&10&5
Giant Truck Casters.....\$ 30&10&5
Stationary Truck Casters.....\$ 30&10&5
Socket Truck Casters.....\$ 30&10&5

Cattle Leaders—

Humason, Beckley & Co.'s.....\$ 70&5
Sargent's.....\$ 60&5&10&5
Hotchkiss.....\$ 30&5
Peck, Stow & W. Co.....\$ 50&10&5

Chain—

Trace, 6-10-2, exact, \$ pair, \$1.03.....\$ 50&10&50&10&5
Trace, 6-10-3, exact, \$ pair 92¢.....\$ 50&10&50&10&5
Trace, 7-10-2, exact, \$ pair \$1.11.....\$ 50&10&50&10&5

NOTE.—Trace, "Regular" sizes, 3¢ net \$ pair less than exact.
Log, Fifth, Stretcher, and other fancy Chains, list Nov. 1, 1884.....\$ 50&10&50&10&5

American Coil, in cask lots, 3-16 ¼ 5-16 ¼ 7-16 ¼ 9-16 ¼ \$8.25 6.00 5.50 4.25 4.10 3.90 3.60 3.40
Less than cask lots, add ¼¢ per lb.
German Coil, list of June 20, 1887.....\$ 50&10&50&10&5

German Halter Chain, list of June 20, 1887.....\$ 50&10&50&10&5
Covert Halter.....\$ 60&25
Covert Traces.....\$ 35&25
Onelda Halter Chain.....\$ 60&60&5
Galvanized Pump Chain.....\$ 75&75&5
Jack Chain, Iron.....\$ 70&70&5
Jack Chain, Brass.....\$ 70&70&5

Chalk—

White.....\$ gr 50¢
Red.....\$ gr 70¢
Blue.....\$ gr 85¢
See also Crayons.

Chalk Lines—

See Lines.

Chisels—

Socket Framing and Firmer, P. S. & W.....\$ 75&10 @ 75¢
New Haven.....\$ 75&10 @ 75¢
Wetherby.....\$ 10&5
Mix.....\$ 75&75&5
Ohio Tool Co.....\$ 75&75&5
Douglass.....\$ 75&75&5
Buck Bros.....\$ 30&5
Merrill.....\$ 60&10 @ 60&10&5
L. & I. J. White.....\$ 30&30&5

Tanged and Miscellaneous, Tanged Firmers.....\$ 40&10&50¢
Butcher's.....\$ 4.75&5.00
Spear & Jackson's.....\$ 45¢ to 2
Buck Bros.....\$ 30¢
Cold Chisels, \$ lb.....\$ 16&19¢

Chucks—

Beach Pat.....each, \$8.00.....\$ 20¢
Morse's Adjustable, each, \$7.00, 20¢&20¢
Danbury.....each, \$6.00, 30¢&30¢
Syracuse, Balz Pat.....\$ 25¢
Skinner's Pat. Drill Chucks.....\$ 30¢
Skinner's Independent Lathe Chucks.....\$ 40¢
Skinner's Pat. Comb. Chuck.....\$ 40¢

Clamps—

R. I. Tool Co.'s Wrought Iron.....\$ 25¢
Adjustable, Gray's.....\$ 20¢
Adjustable, Lambert's.....\$ 20¢
Adjustable, Snow's.....\$ 15¢
Adjustable, Hammers.....\$ 20&10¢
Stearn's Adjustable Cabinet and Corner.....\$ 20&10¢
Cabinet, Sargent's.....\$ 60¢&10¢
Carriage Makers' Sargent's.....\$ 40&50¢
Eberhard Mfg. Co.....\$ 40&50¢
Warner's.....\$ 40&10¢&40&10¢
Saw Clamps, see Vises

Clips—

Norway, Axle, ½ & 5-16.....\$ 55&55&5
2nd grade Norway Axle, ½ & 5-16.....\$ 65&55
Superior Axle Clips.....\$ 60¢&50¢
Norway Spring Bar Clips, 5-16, 60¢&55¢
Wrought-Iron Felloe Clips.....\$ 5¢
Steel Felloe Clips.....\$ 5¢
Baker Axle Clips.....\$ 25¢

Cockeyes.....50¢**Cocks, Brass.**

Hardware list.....\$ 50&25

Coffee Mills—

Box and Side, list Jan. 1, 1888.....\$ 60&25
American, Enterprise Mfg. Co. 20&100&30¢
The Swift, Lane Bros.....\$ 20&10¢

Compasses Dividers, &c—

Compasses, Callipers, Dividers, 70¢&70¢&10¢
Bemis & Call Co.'s Dividers.....\$ 60&55
Compasses & Callipers.....\$ 50&55
Wing and Inside or Outside.....\$ 50&55

Double.....\$ 60¢
(Call's Pat. Inside).....\$ 30¢
Excelsior.....\$ 50¢
J. Stevens & Co.'s.....\$ 25&10¢
Starrett's.....\$ 25&10¢

Spring Callipers and Dividers 25&10¢&10¢
Lock Callipers and Dividers.....\$ 25&10¢
Combination Dividers.....\$ 25&10¢

Coopers' Tools—

Bradley's.....\$ 20¢
Barton's.....\$ 30¢&20¢
L. & I. J. White.....\$ 20¢
Albertson Mfg. Co.....\$ 25¢
Beatty's No. 1, \$ doz, \$2.50; No. 2, \$ doz, \$3.00

Sandusky Tool Co.....\$ 30¢&30¢
Corkscrews—
Humason & Beckley Mfg. Co. 40¢&40¢&10¢
Clough's Pat.....\$ 33¢&33¢&5¢
Howe Bros & Hulbert.....\$ 35¢

Core Knives and Cutters—

Bradley's.....\$ 10¢
Wadsworth's.....\$ 25¢

Cradles—

Grain.....\$ 50&25

Crayons.

White Crayons, \$ gr 12¢&12¢.....\$ 10¢
D. M. Stewart Mfg. Co., Metal Work-ers, \$ gr, \$2.50.....\$ 25¢
D. M. Stewart Mfg. Co., Rolling Mill, \$ gr, \$2.50.....\$ 25¢
See also Chalk.

Crow Bars—

Cast Steel.....\$ 4¢
Iron, Steel Points.....\$ 35¢

Curry Combs—

Fitch's.....\$ 50&10&50&10&10¢
Rubber, per doz \$10.00.....\$ 20¢
Perfect.....\$ 50¢

Curtain Pins—

Silvered Glass.....\$ net
White Enamel.....\$ net

Cutlery—

Beaver Falls & Booth's.....\$ 33¢
Wootenholme.....\$ 7.75 to 2

Dampers, &c—

Dampers, Buffalo.....\$ 40&10¢
Buffalo Damper Clips.....\$ 40&10¢
Crown Damper.....\$ 40¢
Excelsior.....\$ 40&10¢

Dividers—

See Compasses.

Dog Collars—

Embossed, Gilt, Pope & Steven's list.....\$ 30&10¢
Brass, Pope & Steven's list.....\$ 40¢

Door Springs—

Torrey's Rod, regular size.....\$ doz \$1.30
Gray's, \$ gr, \$20.00.....\$ 20¢
Bee Rod, \$ gr, \$20.00.....\$ 20¢
Warner's No. 1, \$ doz, \$2.50; No. 2, \$ doz, \$3.30.....\$ 40&10&50¢

Gem (Coll), list April 19, 1886.....\$ 10¢
Star (Coll), list April 19, 1886.....\$ 20¢
Victor (Coll).....\$ 60¢&60¢
Champion (Coll).....\$ 60¢&60¢&10¢
Philadelphia, 5 in., \$5.00; 8 in., \$7.75.....\$ 7.75
Cowell's.....No. 1, \$ doz, \$18.00; No. 2, \$15.00.....\$ 50¢
Rubber, complete, \$ doz, \$4.50.....\$ 55&10¢
Hercules.....\$ 50¢
Shaw Door Check and Spring, 25¢&30¢&35¢

Drawing Knives—

Wetherby.....\$ 75&10 @ 75¢
Mix.....\$ 85¢
New Haven.....\$ 60&10 @ 60&10&5¢
Merrill.....\$ 75&75&5¢
Watrous.....\$ 15&10&25¢
L. & I. J. White.....\$ 20&5¢
Bradley's.....\$ 35¢
Adjustable Handle.....\$ 25¢&39¢
Wilkinson's Folding.....\$ 25¢&25¢

Drills and Drill Stocks—
Blacksmith's.....each \$1.75
Blacksmith's Self-Feeding, each \$7.50, 20¢
Breast, P. S. & W.....\$ 40&10¢
Breast, Wilson's.....\$ 30&5¢
Breast, Millers Falls.....each \$3.00, 25¢
Breast, Bartholomew's.....each \$2.50, 25¢&10¢&40¢

Ratchet, Merrill's.....\$ 20¢&20¢
Ratchet, Ingersoll's.....\$ 25¢
Ratchet, Parker's.....\$ 20¢&20¢
Ratchet, Whitney's.....\$ 20¢&10¢
Ratchet, Weston's.....\$ 20¢&25¢
Ratchet, Moore's Triple Action, 25¢&30¢
Ratchet, Curtis & Curtis.....\$ 30¢
Whitney's Hand Drill, Plain, 11¢; Adjustable, 12¢.....\$ 20&10¢
Wilson's Drill Stocks.....\$ 10¢
Automatic Boring Tools.....\$ 1.75&1.85

Drill Bits—

Morse.....\$ 50&10&5¢
Standard.....\$ 50&10&5¢
Syracuse (Metal list).....\$ 50&10¢
Cleveland.....\$ 50&10&5¢
Williams.....\$ 50&10&10¢
New Process.....\$ 50&10&5¢

Drill Bits— See Augers and Bits

Drill Chucks.—See Chucks.**Dripping Pans—**

Small sizes.....\$ 6¢
Large sizes.....\$ 6¢

Egg Beaters.

Dover.....\$ doz \$1.50
National, \$ doz \$4.50.....\$ 33¢
Family (T. & S. Mfg. Co.), \$ gro \$17.00.....\$ 18.00

Duplex (Standard Co.).....\$ gro \$15.00
Rival (Standard Co.).....\$ gro \$12.00
Large Duplex (Standard Co.), \$ doz \$4.50
Triumph (T. & S. Mfg. Co.), \$ gro \$10.50

Advance, No. 1.....\$ gro \$11.50
Advance, No. 2.....\$ gro \$10.00
Bryant's.....\$ gro \$14.00
Ayres' Spiral.....\$ gro \$5.00

Double (H. & R. Mfg. Co.).....\$ gro \$16.20
Easy (H. & R. Mfg. Co.).....\$ gro \$14.00
Triple (H. & R. Mfg. Co.).....\$ gro \$16.20
Spiral (H. & R. Mfg. Co.).....\$ gro \$4.50
Paine, Diehl & Co.'s.....\$ gro \$24.00

Egg Poachers—

Buffalo Steam Egg Poachers, \$ doz, No. 1, \$40.00; No. 2, \$49.00.....\$ 25¢

Electric Bell Sets.—

Wollensak's.....\$ 20¢
Bigelow & Dowse.....\$ 20¢

Emery— No. 4 to No. 54 to Flour, CF 150 gr. F FF
Kegs, \$ lb.....\$ 2½¢
½ kegs, \$ lb.....\$ 2½¢
¼ kegs, \$ lb.....\$ 2½¢
10-lb cans, 10.....\$ 5¢
In case.....\$ 6¢
10-lb cans, less than 10.....\$ 10¢ 7½¢

Enamelled and Tinned Ware—

See Hollow-Ware.

Escutcheon Pins—

Iron, list Nov. 11, 1885, 50&10&50&10&5¢
Brass.....\$ 60&60&5¢

Escutcheons.

Door Lock.....Same dls as Door Locks.
Brass Thread.....\$ 60¢&60¢&10¢
Wood.....\$ 25¢

Faucets.—

Fenn's.....\$ 40¢
Bohret's Pat. Rubber Ball.....\$ 25¢
Fenn's Cork Stops.....\$ 33¢
Star.....\$ 60¢
Fenn's Pat. Petroleum.....\$ 40¢&5¢
B. & L. B. Co.....\$ 40¢

West's Lock, Open and Shut Key.....\$ 50¢
Star, Metal Plug, new list.....\$ 40¢
Lockport, Metal Plug, reduced list.....\$ 40¢
Metallic Key, Leather Lined.....\$ 60¢&10¢

Cork Lined.....\$ 70¢&70¢&10¢
Burnside's Red Cedar.....\$ 50¢
Burnside's Red Cedar, bbl lots.....\$ 50&10¢
John Sommers' Peerless Best Block Tin Key.....\$ 40¢
K.L. list quality, Cork Lined.....\$ 50¢
Diamond Lock, Red Cedar.....\$ 50¢
Perfection, Fla. Red Cedar.....\$ 50¢
Goodenough Cedar.....\$ 50¢
Boss Metallic Key.....\$ 50¢
Reliable Cork Lined.....\$ 60¢
Western Pattern Cork Lined.....\$ 50¢

Self-Measuring Enterprise, \$ doz \$50.00.....\$ 20&10¢
Lane's, \$ doz \$36.00.....\$ 25&10¢
Victor, \$ doz \$36.00.....\$ 25&10¢

Felloe Plates.—

See Measuring.

Fifth Wheels.—

Derby and Cincinnati.....\$ 45¢&5¢

Files—

Domestic—
Nicholson Files, Rasps, &c.....\$ 60&10¢&60&10&5¢
Nicholson (X. F.) Files.....\$ 25¢
Nicholson's Royal Files (Seconds).....\$ 75¢
Diamond (extra prices on certain sizes)

Other makers, best brands.....\$ 60&10¢&60&10&10¢
Fair brands.....\$ 60&10¢&60&10¢
Second quality.....\$ 70¢&70¢&75¢
Nicholson's Horse Rasps.....\$ 60&10¢&60¢

Heller's Horse Rasps.....\$ 50¢&75¢&50&10¢
McCaffrey's Horse Rasps.....\$ 50&10¢
Chelsea Horse Rasps, Hand Cut.....\$ 50&10¢

Imported—
J. & Riley Carr.....List, April 1, 1883, 15¢
J. & Riley Carr Horse Rasps.....\$ 10¢
Moss & Gamble.....List, April 1, 1883, 15¢
Butcher.....Butcher's list, 20¢
Stubbs.....Stubbs list, 25¢&30¢
Turton's.....Turton's list, 20¢&25¢
Greaves' Horse Rasps, American list, 60¢

Fluting Machines—

Knox, 4-½-inch Rolls.....\$3.25 each 35¢
Knox, 6-inch Rolls.....\$3.60 each 40¢
Eagle, 3-½-inch Roll, \$2.15.....\$ 35¢
Eagle, 5-½-inch Roll, \$2.85.....\$ 35¢
Crown, 4-½ in., \$3.50; 6 in., \$4.00; 8 in., \$6.50 each.....\$ 35¢
Crown Jewel, 6 in.....\$3.50 each, 35¢
American, 5 in., \$3.00; 6 in., \$3.40; 7 in., \$4.50 each.....\$ 35¢

Domestic Fluter.....each, \$1.50
Geneva Hand Fluter, White Metal.....\$ doz \$12, 25¢
Crown Hand Fluter, Nos. 1, \$15.00; 2, \$12.50; 3, \$10.00.....\$ 30¢
Shepard Hand Fluter, No. 85.....\$ 30¢
\$15.30.....\$ 40¢
Shepard Hand Fluter, No. 110.....\$ doz \$11.00.....\$ 40¢
Shepard Hand Fluter, No. 95.....\$ doz \$11.00.....\$ 40¢
Clark's Hand Fluter.....\$ doz \$15.00.....\$ 35¢
Combined Fluter and Sad Iron.....\$ doz \$15.00.....\$ 30¢
Buffalo.....\$ doz \$10.00.....\$ 10¢

Fluting Scissors—

Blair's.....\$ doz \$2.00
Blair's "Climax".....\$ doz \$1.25

Fork—

Hay, Manure, &c. Asso. List.....\$ 65¢
Hay, Manure, &c., Phila. List 60¢&60¢
Plated, see Spoons.

Freezers, Ice Cream—

Buffalo Champion.....\$5&55&5¢
Shepard's Lightning.....\$5 @ 65&5¢
White Mountain.....\$50&20&5¢
New Arctic.....\$50&40&5¢
American.....\$60¢
Gem.....\$65¢
Blizzard.....\$70¢
Double Action Crown.....\$60¢
Crown.....\$60¢
Star.....\$60¢
Peerless and Giant.....\$60&10¢
Zero and Pet.....\$65&10¢
Boss.....\$65&10&10¢
Keystone, each, \$1.50.....\$ 25¢

Fruit and Jelly Presses—

Enterprise Mfg. Co.....\$20&10&30¢
Henis.....\$ doz \$2.50
Shepard's Queen City.....\$ 40¢

Fry Pans—

High List.....\$75&5¢&75&10¢
No.....\$ 3 4
\$ doz.....\$3.75 \$4.70 \$5.30 \$5.95 \$6.55
No.....\$ 5 6 7 8
\$ doz.....\$7.50 \$8.75 \$10.00 \$11.25

Low List.....\$65&10¢
No.....\$ 0 1 2 3 4
\$ doz.....\$3.00 \$3.75 \$4.25 \$4.75 \$5.25
No.....\$ 5 6 7 8
\$ doz.....\$6.00 \$7.00 \$8.00 \$9.00

Fuse—

\$ 1000 ft
Common Hemp Fuse, for dry ground, \$2.70
Common Cotton Fuse, for dry ground, 2.85
Single Taped Fuse, for wet ground, 4.25
Double Taped Fuse, for very wet gr., 5.40
Triple Taped Fuse, for very wet gr., 6.50
Small Gutta Percha Fuse, for water, 7.50
Large Gutta Percha Fuse, for water, 12.00

Gauges—

Marking, Mortise, &c.....\$60&10¢
Starrett's Surface, Center and Scratch, 25¢&10¢
Wire, low list.....\$ 10&10¢
Wire, Wheeler, Madden & Co.....\$ 10¢
Wire, Morse's.....\$ 50&50¢
Wire, Brown & Sharpe's.....\$ 10¢&20¢

Gimlets—

Nail and Spike.....\$50&10&5¢
"Eureka" Gimlets.....\$40&10¢
"Diamond" Gimlets.....\$ gr \$5.00
Double Cut, Shepardson's.....\$45¢&45¢
Double Cut, Ives'.....\$60¢&60¢
Double Cut, Douglass'.....\$40&10¢
"Bee," \$ gr \$12.....\$ 25¢&25¢

Glue—

Le Page's Liquid.....\$ 25¢&25¢
Upton's Liquid.....\$ 35¢
Le Page & Co.'s Improved Process.....\$ 25¢&25¢

Glue Pots—

Tinned.....\$ 40¢
Enamelled.....\$ 40¢
Family, Howe's "Eureka".....\$ 40¢
Family, L. F. C.'s "Handy".....\$ 50¢

Grindstones—

Small, at factory.....\$ ton \$7.50&9.00

Grindstone Fixtures—

Sargent's Patent.....\$ 70¢&10¢
Reading Hardware Co.....\$ 30&10¢

Hack Saws.—

See Saws.

Halters—

Covert's, Rope, ¼-in. Jute.....\$ 50&25¢
Covert's, Rope, ½

Cross-Cut Saw Handles—

Atkins No. 1 Loop, # pair, 28¢; No. 3, 18¢; No. 8, 16¢; No. 2 and No. 4 Reversible, 18¢.
 Boynton's Loop Saw Handles, 50¢... 90¢
 Champion... 15¢

Hangers—

Barn Door, old patterns... 60¢&10¢&70¢
 Barn Door, New England... 60¢&10¢&70¢
 Samson Steel Anti-Friction... 55¢
 Orleans Steel... 55¢
 Hamilton Wrought Wood Track... 55¢
 U. S. Wood Track... 55¢
 Champion... 60¢&10¢
 Rider and Wooster, Medina Yfg. Co. 1st... 70¢
 Climax Anti-Friction... 60¢
 Climax Anti-Friction for Wood Track... 55¢
 Zenith for Wood Track... 55¢
 ed's Steel Arm... 50¢
 allenge, Barn Door... 50¢
 Sterling's Imp'ed (Anti-Friction)... 65¢&10¢
 Victor, No. 1, \$15.00; No. 2, \$16.50; No. 3, \$18.00... 50¢&2¢
 Cheriter... 50¢&10¢
 Kidder's... 50¢&10¢&60¢
 The Boss... 60¢&10¢
 Best Anti-Friction... 60¢&10¢
 Duplex (Wood Track)... 60¢&10¢
 Terry's Pat., # doz pr. 4 in, \$10.00; 5 in, \$12.00... 50¢&5¢&10¢
 Cronk's Pat., No. 4, \$12.00; No. 5, \$14.40; No. 6, \$18.00... 50¢&15¢&60¢
 Wood Track Iron Clad, # ft. 10¢... 15¢&60¢
 Carrier Steel Anti-Friction... 50¢&5¢&5¢
 Architect, # set \$4.00... 20¢&10¢
 Eclipse... 20¢&10¢
 Richards' # set \$4.50... 20¢&10¢
 Lane's Steel Anti-Friction... 50¢
 Ball Bearing Door Hanger, 30¢&10¢&25¢&10¢
 Warner's Pat... 20¢&20¢&10¢
 Stearns' Anti-Friction... 20¢&20¢&10¢
 Stearns' Challenge... 25¢&10¢&25¢&10¢&10¢
 Faultless... 40¢&40¢&5¢
 American, # set \$6.00... 20¢&10¢
 Rider & Wooster, No. 1, 62¢; No. 2, 75¢... 40¢
 Paragon, Nos. 1, 2 and 3... 40¢&10¢
 Paragon, Nos. 5, 5½, 7 and 8... 20¢&10¢
 Crescent... 60¢&60¢
 Nickel, Cast Iron... 50¢
 Nickel, Malleable Iron and Steel... 40¢
 Seranton Anti-Friction Single Strap... 35¢
 Seranton Anti-Friction Double Strap... 40¢
 Universal Anti-Friction... 40¢
 Wild West, 4 in. Wheel, \$15.00; 5 in. Wheel, \$21.00... 40¢&10¢&40¢&10¢
 Star... 40¢&10¢&40¢&10¢
 May... 50¢&5¢&50¢&10¢
 Barry... 40¢&10¢

Harness Snaps—

See Snaps.

Hatchets—

List Jan. 1, 1886... 35¢&40¢
 Isiah Blood... 35¢&40¢
 Hunt's Shingling, Lath and Claw... 40¢&5¢
 Hunt's Broad... 40¢
 Buffalo Hammer Co... 40¢&10¢&50¢
 Hurd's... 40¢&10¢&50¢
 Fayette R. Plumb... 40¢&10¢&50¢
 Wm. Mann, Jr. & Co... 40¢&10¢&50¢
 Underhill Edge Tool Co... 40¢&5¢&40¢&10¢
 Underhill's, Haines and Bright... 35¢&4¢
 C. Hammond & Son... 40¢&10¢&50¢
 Simmons... 40¢&10¢&50¢
 Peck's... 40¢&10¢&40¢&10¢&5¢
 Kelly's... 50¢&50¢&5¢
 Sargent & Co... 50¢
 Ten Eyck Edge Tool Co... 40¢&10¢&40¢&10¢&5¢
 Collins... 10¢
 Schulte, Lohoff & Co... 50¢&50¢&5¢

Hay and Straw Knives—

Lightning, Mfrs. price # doz \$18.00, 25¢
 But jobbers frequently give extras.

Wadsworth's

Gem... 40¢
 Carter's Needle... # doz \$11.50, \$12.00
 Heath's... # doz \$13.50, \$14.00
 Auburn Hay, Com. and Spear Point... 60¢
 Auburn, Straw... 40¢
 Nolin's Hay... # doz \$10.00

Hinges—

Wrought Iron Hinges

Strap and T... 75¢&5¢&75¢&10¢
 Screw Hook and Strap... 14 to 20 in, # doz... 34¢
 22 to 36 in, # doz... 24¢
 Heavy Welded... 6 to 12 in, # doz... 34¢
 Hook... 14 to 20 in, # doz... 34¢
 22 to 36 in, # doz... 24¢
 Screw Hook... 1½ in, # doz \$2.45, 10¢
 and Eye... ¾ in, # doz \$3.80

Roller Blind Hinges, Nos. 32 and 34... 50¢&10¢
 Rolled Blind Hinges, Nos. 232 and 234... 50¢&10¢

Wire—

Wire Coat and Hat, Gem, 1st April, 1886... 60¢
 Wire Coat and Hat, Miles, 1st April, 1886... 60¢
 Indestructible Coat and Hat... 45¢
 Wire Coat and Hat, Standard... 45¢
 Belt... 80¢&80¢&10¢

Miscellaneous

Grass, No. 2, \$2.00; No. 3, \$2.25; No. 4, \$2.50
 Noll's Grass... # doz \$2.25
 Rush... 55¢&60¢
 Whitetree—Patent... 55¢
 Hooks and Eyes—Malleable Iron... 70¢&70¢&10¢
 Hooks and Eyes—Brass... 60¢&10¢&10¢
 Fish Hooks, American... 50¢
 Bench Hooks... See Bench Stops.

Horse Nails—

Nos. 6 7 8 9 10
 Ausable... 28¢ 26¢ 25¢ 24¢ 23¢
 25¢&10¢&25¢&10¢&10¢
 Clinton, Fin... 24¢ 22¢ 21¢ 20¢ 19¢
 Essex... 28¢ 26¢ 25¢ 24¢ 23¢
 25¢&10¢&25¢&10¢&10¢
 Lyra... 25¢ 23¢ 22¢ 21¢ 20¢
 40¢&10¢&5¢&50¢
 Snowden... 25¢ 23¢ 22¢ 21¢ 20¢
 Putnam... 23¢ 21¢ 20¢ 19¢ 18¢
 1000 lb in year 15¢
 Vulcan... 23¢ 21¢ 20¢ 19¢ 18¢, 12½¢&5¢
 Northwest... 25¢ 23¢ 22¢ 21¢ 20¢
 10¢&10¢&5¢&5¢
 Globe... 23¢ 21¢ 20¢ 19¢ 18¢, 20¢&2½¢
 Boston... 23¢ 21¢ 20¢ 19¢ 18¢, 20¢&2½¢
 A. C... 25¢ 23¢ 22¢ 21¢ 20¢
 25¢&10¢&33¢&5¢
 C. B. K... 25¢ 23¢ 22¢ 21¢ 20¢
 25¢&10¢&33¢&5¢
 Champlain... 28¢ 6¢ 25¢ 24¢ 23¢
 25¢&10¢&10¢

Gate Hinges—

Western... # doz \$4.40, 60¢
 N. E. Reversible... # doz \$7.00, 55¢
 Clark's, Nos. 1, 2, 3... # doz \$5.20, 55¢&10¢
 N. Y. State... # doz \$5.00, 55¢&10¢
 Automatic... # doz \$12.50, 50¢
 Common Sense... # doz pair \$4.50, 50¢
 Seymour's... 45¢&10¢
 Shepard's... 60¢&10¢
 Reed's Latch and Hinges... # doz \$12.00, 50¢

Blind Hinges—

Parker... 75¢&2¢
 Palmer... 50¢&5¢&10¢
 Seymour... 70¢&2¢
 Nicholson... 45¢&10¢
 74¢&10¢

Clark's, Nos. 1, 3, 5, 40 and 50... 75¢&10¢&5¢&80¢
 Clark's Mortise Gravity... 50¢
 Sargent's, Nos. 1, 3, 5, 11, 13... 75¢&10¢&55¢&10¢&5¢
 Reading's Gravity... 75¢&10¢&75¢&10¢&5¢
 Shepherd's... 75¢&10¢&5¢
 Noiseless... 75¢&10¢&5¢
 Niagara... 80¢&2½¢
 Buffalo... 80¢&5¢
 Clark's Genuine Pat... 80¢&5¢
 O. S., Lull & Porter... 75¢&10¢&80¢
 Acme, Lull & Porter... 75¢&5¢
 Queen City Reversible... 75¢
 Clark's Lull & Porter, Nos. 0, 1, 1½, 2, 2½, 3... 75¢&10¢&2½¢
 North's Automatic Blind Fixtures, No. 2, for Wood, \$10.50; No. 3, for Brick, \$13.50... 25¢&2¢

Hoes—

Handled—

Garden, Mortar, &c... 65¢
 Planter's, Cotton, &c... 65¢
 Warren Hoe... 60¢
 Magde... # doz \$4.00

Eye—

D. & H. Scovill... 20¢
 Lane's Crescent Planters Pattern... 45¢&5¢
 Lane's Razor Blade, Scovill Pattern... 30¢
 Maynard, S. & O. Pat... 45¢&5¢
 Sandusky Tool Co., S. & O. Pat... 60¢
 Hubbard & Co., S. & O. Pat... 60¢
 Chattanooga Tool Co., S. & O. Pat... 60¢
 Grub... 60¢&60¢&10¢

Hog Rings and Ringers—

Hill's Improved Ringers... # doz \$4.25
 Hill's Old Style Ringers... # doz \$2.75
 Hill's Tongs... # doz \$4.50
 Hill's Rings... # doz bxs \$2.15, \$2.25
 Perfect Rings... # doz bxs \$1.60, \$1.70
 Perfect Ringers... # doz \$2.15, \$2.25
 Blair's Hog Ringers... # doz \$2.25, \$2.50
 Blair's Hog Ringers... # doz \$2.00, \$1.00
 Champion Rings, Double... # doz \$2.25
 Brown's Ringers... # doz \$2.00
 Brown's Ringers... # doz \$1.25, \$1.30

Hoisting Apparatus—

Moore's Hand Hoist, with Lock... 20¢
 Brake... 20¢
 Moore's Differential Pulley Block... 40¢
 Energy Mfg. Co.'s... 25¢

Holders, File and Tool—

Balz Pat... # doz \$4.00; 25¢
 Nicholson File Holders... 20¢

Hollow-Ware—

Iron—

Stove Hollow-Ware—... 60¢&60¢&5¢
 Ground... 60¢&10¢&60¢&10¢
 Unground... 60¢&10¢
 Boilers and Saucepans... 40¢&5¢
 Tinned Boilers and Saucepans... 40¢
 Gray Enameled-Ware—... 45¢&50¢
 Stove... 45¢&50¢
 Maslin Kettles... 60¢&10¢&60¢&10¢
 Boilers and Saucepans... 40¢&5¢
 Agate and Granite Ware, 1st Jan. 1, 1889... 35¢&10¢
 Rustless Hollow-Ware... 50¢&50¢
 Galvanized Tea-Kettles—... 50¢&50¢

Inch 6 7 8 9
 Each... 55¢ 60¢ 65¢ 75¢

Silver Plated—

4 mo. or 5 % cash in 30 days.

Reed & Barton... 40¢&5¢
 Simpson, Hall, Miller & Co... 40¢&5¢
 Rogers & Brother... 40¢&5¢
 Hartford Silver Plate Co... 40¢&5¢
 William Rogers Mfg. Co... 40¢&5¢

Hooks—

Cast Iron—

Bird Cage, Sargent's list... 60¢&10¢&10¢
 Bird Cage, Reading... 60¢&10¢&10¢
 Clothes Line, Sargent's list... 60¢&10¢&10¢
 Clothes Line, Reading list... 60¢&10¢&10¢

Ceiling, Sargent's list... 55¢&10¢&10¢
 Harness, Reading list... 55¢&10¢&10¢
 Coat and Hat, Sargent's list... 55¢&10¢&10¢
 Coat and Hat, Reading... 55¢&10¢&10¢
 Coat and Hat, Reading... 50¢&10¢&50¢&10¢&10¢

Wrought Iron—

Cotton... # doz \$1.25
 Cotton Pat. (N.Y. Mallet & Handle Wks)... 30¢
 Tassel and Picture (T. & S. Mfg. Co.)... 50¢
 Wrought Staples, Hooks, &c... See Wrought Goods.

Wire—

Wire Coat and Hat, Gem, 1st April, 1886... 60¢
 Wire Coat and Hat, Miles, 1st April, 1886... 60¢
 Indestructible Coat and Hat... 45¢
 Wire Coat and Hat, Standard... 45¢
 Belt... 80¢&80¢&10¢

Miscellaneous

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 Rush... 55¢&60¢
 Whitetree—Patent... 55¢
 Hooks and Eyes—Malleable Iron... 70¢&70¢&10¢
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 Fish Hooks, American... 50¢
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Horse Nails—

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 40¢&10¢&5¢&50¢
 Snowden... 25¢ 23¢ 22¢ 21¢ 20¢
 Putnam... 23¢ 21¢ 20¢ 19¢ 18¢
 1000 lb in year 15¢
 Vulcan... 23¢ 21¢ 20¢ 19¢ 18¢, 12½¢&5¢
 Northwest... 25¢ 23¢ 22¢ 21¢ 20¢
 10¢&10¢&5¢&5¢
 Globe... 23¢ 21¢ 20¢ 19¢ 18¢, 20¢&2½¢
 Boston... 23¢ 21¢ 20¢ 19¢ 18¢, 20¢&2½¢
 A. C... 25¢ 23¢ 22¢ 21¢ 20¢
 25¢&10¢&33¢&5¢
 C. B. K... 25¢ 23¢ 22¢ 21¢ 20¢
 25¢&10¢&33¢&5¢
 Champlain... 28¢ 6¢ 25¢ 24¢ 23¢
 25¢&10¢&10¢

New Haven... 28¢ 26¢ 25¢ 24¢ 23¢
 25¢&10¢&25¢&10¢&10¢
 Saranac... 23¢ 21¢ 20¢ 19¢ 18¢, 30¢&10¢
 Champion... 25¢ 23¢ 22¢ 21¢ 20¢
 10¢&10¢&10¢
 Capewell... 28¢ 26¢ 25¢ 24¢ 23¢
 35¢&5¢&35¢&10¢
 Star... 23¢ 21¢ 20¢ 19¢ 18¢
 10¢&10¢&10¢&12½¢
 Anchor... 23¢ 21¢ 20¢ 19¢ 18¢, 35¢
 Western... 23¢ 21¢ 20¢ 19¢ 18¢, 40¢&10¢
 Empire Bronze... 14¢
 Horse Shoes—See Shoes Horse.

Hose, Rubber—

Competition... 75¢&10¢&75¢&10¢&5¢
 Standards, Nested, Nos. 0, 1, 2 and 3 (4 pieces), # nest... 70¢&70¢&10¢
 Extra... 60¢&60¢&10¢
 N. Y. B. & P. Co., Para... 30¢&10¢
 N. Y. B. & P. Co., Extra... 50¢
 N. Y. B. & P. Co., Dundee... 60¢&10¢&5¢

Huskers—

Blair's Adjustable... # gr \$8.00
 Blair's Adjustable Clipper... # gr 7.00

Indurated Fiber-Ware—25 %

Spittoons, No. 2, # doz... \$9.00
 Basins, Ringed, # doz, No. 1, \$4.80; No. 2, \$4.20; No. 3... \$5.00
 Washtubs, Nested, Nos. 0, 1, 2 and 3 (4 pieces), # nest... \$7.50
 Keelers, Nested, Nos. 1, 2, 3 and 4 (4 pieces), # nest... \$3.70
 Butter Bowls 15, 17 and 19-inch (3 pieces), # nest... \$2.25
 Liquid Measures, pt., qt., 2 qt. and funnel (4 pieces), # set... \$4.00
 Dry Measures, 1, 2, 4, 8 and 16 qts. (5 pieces), # set... \$3.00
 See also Pails.

Jack Screws—See Screws.

Kettles—

Spun, Stamped.
 Brass, 7 to 17 in, # doz... 24¢ 21¢
 Brass larger than 17 in... 20¢ 23¢
 Enameled and Tea Kettles... See Hollow-Ware.

Keys—

Lock Ass'n list Dec. 30, 1886... 50¢&10¢
 60¢&5¢
 Eagle, Cabinet, &c... 33¢&2¢
 Hotchkiss' Brass Blanks... 40¢
 Hotchkiss' Copper and Tinned... 40¢
 Hotchkiss' Pad. and Cab... 35¢
 Ratchet Bed Keys... # doz \$4.00, 15¢
 Wollensak Tinned... 50¢&10¢

Knife Sharpeners—

Parkin's... # doz \$6.00, 40¢
 Rosewood or Cocobolo... # doz \$9.00, 40¢

Knives—

Wilson's Butcher Knives... 25¢&30¢
 Foster Bros' Butcher, &c... 25¢
 Nichols' Butcher Knives... 40¢&10¢
 Ames' Shoe Knives... 20¢&25¢
 Ames' Bread Knives... # doz \$1.50, 15¢&20¢
 Moran's Shoe and Bread... 30¢
 Lay and Strain... See Lay Knives.
 Table and Pocket... See Cutlery.
 Corn, Auburn Mfg. Co. Western Pat... \$2.00
 Corn, Auburn Mfg. Co. Crescent... \$3.50

Knobs—

Door Mineral... 65¢&65¢
 Door Por. Jap'd... 75¢&78¢
 Door Por. Nickel... \$2.00, \$2.25
 Door Por. Plated, Nickel... \$2.00, \$2.25
 Drawer, Porcelain... 60¢&10¢&60¢&10¢&10¢
 Hemlock Door Knobs... 40¢&10¢&50¢
 Yale & Towne Wood, list Dec., 1885... 40¢
 Furniture, Plain... 75¢ gro 10¢
 Furniture, Wood Screws... 25¢&10¢
 Base, Rubber Tip... 70¢&10¢&5¢
 Picture, Judd's... 60¢&10¢&10¢&70¢
 Picture, Sargent's... 70¢&10¢
 Picture, Hemlock... 35¢&5¢
 Shutter, Porcelain... 65¢&10¢
 Carriage, Jap... # gro 80¢, 60¢&10¢

Ladders—

Melting, Reading... 55¢&10¢
 Melting, Monroe's Pat... # doz \$4.00, 40¢
 Melting, P. S. & W... 35¢&10¢&40¢
 Melting, Warner's... 30¢

Lawn Mowers—

Standard List... 50¢&10¢
 Quaker City... 60¢&10¢
 Enterprise... 60¢&10¢

Lanterns—

Tubular—

Plain with Guards, # doz... \$4.00, \$4.25
 Lift Wire, with Guards... \$4.50, \$4.75
 Square Plain, with Guards... \$4.00, \$4.25
 Sq. Lift Wire, with Guards... \$4.25, \$4.50
 Without Guards, 25¢ # doz less.

Miscellaneous

Police, Small, \$4.00; Medium, \$7.25; Large, \$9.75... 20¢&25¢

Lemon Squeezers—

Porcelain Lined, No. 1... # doz \$6.00, 25¢&30¢
 Wood, No. 2... # doz \$3.00, 35¢
 Wood, Common... # doz \$1.70, 1.75
 Dunlap's Improved... # doz \$3.75, 20¢
 Sammis... No. 1, \$5.00; No. 2, \$9; 12, \$18 # doz... 25¢&10¢
 Jennings' Star... # doz \$2.50
 The Boss... # doz \$2.50
 Dean's... Nos. 1, # doz \$6.50, 2, \$3.35; 3, \$1.90
 Little Giant... 50¢&50¢&5¢
 King... 40¢&5¢

Lines—

Cotton and Linen Fish, Draper's... 50¢
 Draper's Chalk... 60¢
 Draper's Mason's Line, 84 ft. No. 1... \$1.25; No. 2, \$1.75; No. 3, \$2.25; No. 4, \$2.75; No. 5, \$3.25... 25¢
 Cotton Chalk... 55¢
 Samson, Cotton, No. 4, \$2; No. 4½, \$2.50; 10¢
 Silver Lake, Braided, No. 0, \$6.00; No. 1, \$6.50; No. 2, \$7.00; No. 3, \$7.50 # gro... 25¢
 Mason's Linen, No. 3½, \$1.50; No. 4, \$2.00; No. 4½, \$2.50... 45¢
 Mason's Colored Cotton... 18 19 20
 Wire Clothes... Nos. 18 19 20 \$3.00 \$3.00 \$2.5

Ventilator Cord, Samson Braided, White or Drab Cotton... # doz \$7.50, 20¢

Locks, &c.—

Door Locks, Latches, &c.
 List Dec. 30, '88, chgd Feb. 2, '87... 50¢&10¢&10¢
 R. & E. Mfg. Co., list Mar. 20, 1889... 60¢&10¢
 Mallory, Wheeler & Co., list July, '88... 50¢&10¢&10¢
 Sargent & Co., list Aug. 1, '88... 10¢&60¢&10¢&5¢
 Reading Hardware Co., list Feb. 2, '88... 55¢&60¢&10¢

Note.—Lower net prices often made.

Perkins' Burglar Proof... 60¢&25¢
 Plate... 35¢&25¢
 F. Many's "Extension Cylinder" \$10.50 # doz.

Barnes Mfg. Co... 40¢&40¢&10¢
 Deitz Flat Key... 30¢
 L. & C. Round Key Latches... 30¢&10¢
 L. & C. Flat Key Latches... 33¢&10¢
 Romer's Night Latches... 15¢
 Shephardson or U. S... 35¢
 Felter or American... 40¢&10¢
 Seed's N. Y. Hasp Lock... 25¢

Cabinets—

Eagle, Gaylord Par... list March, '84, rev ker and Corbin... Jan. 1, '85... 35¢&25¢
 Deitz, Nos. 36 to 39... 40¢
 Deitz, Nos. 5

Molasses Gates—

Stebbin's Pat.	70¢ 70¢ 71¢
Stebbin's Genuine	60¢ 10¢ 10¢
Stebbin's Tinned Ends	40¢ 10¢
Chase's Hard Metal	50¢ 10¢
Bush's	20¢
Lincoln's Pattern	70¢ 70¢ 10¢
Wood's	20¢ 10¢

Boss, per doz:

Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100	60¢ 10¢ 10¢
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Money Drawers—

per doz.	\$18.00 to \$20.00
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Muzzles—

Safety	per doz.	\$3.00, 25¢
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Nails, see Trade Report.**Wire Nails, Papered.**

Association list, July 15, 1889.

70¢ 10¢ 10¢ 70¢ 10¢ 10¢ 5¢

Tack Mfrs. list, 70¢ 70¢ 5¢

Wire Nails, Standard Penny.

Card June 1, '89, base, \$2.40 to \$2.50

Nail Puller—

Curtiss Hammer, per doz \$9.00

Giant, No. 1, per doz \$30.00, 10¢

Pelican, per doz \$9.00, 25¢

Boss, per doz \$30.00, 30¢

Lightning, per doz \$21.00

Nail Sets—

Square, per gr. \$4.00 to \$4.25

Round, per gr. \$3.25

Cannon's Diamond Point, per gr. \$12.20

Nut Crackers—

Table (H. & B. Mfg. Co.), 40¢

Blake's Pattern, per doz \$2.00, 10¢

Turner & Seymour Mfg. Co., 50¢

Nuts—

Nuts, off list Jan. 1, 1888: Square, Hex.

Hot Pressed, 5.4¢ 5.9¢

Cold Punched, 5.4¢ 5.5¢

In lots less than 100 lb, add 1/2¢; 1-lb boxes, add 1¢ to list.

Oakum—

Government, per lb 7 1/2¢ @ 8¢

U. S. Navy, per lb 6 1/2¢ @ 7¢

Navy, per lb 5 1/2¢ @ 6 1/2¢

Oilers—

Zinc and Tin, 65¢ 65¢ 10¢

Brass and Copper, 50¢ 10¢ 50¢ 10¢ 5¢

Malleable, Hammers Improved, No. 1,

\$3.00; No. 2, \$4.00; No. 3, \$4.40 per doz.

10¢ 10¢ 10¢

Malleable, Hammers, Old Pattern, same

list, 40¢

Prior's Pat. or "Paragon" Zinc,

60¢ 10¢ 10¢

Prior's Pat. or "Paragon" Brass,

50¢

Olmstead's Tin and Zinc, 60¢

Olmstead's Brass and Copper, 50¢

Broughton's Zinc, 60¢

Broughton's Brass, 50¢

Gem P. D. & Co., per gro. \$2

Packing, Steam—**Rubber—**

Standard, 60¢ 10¢ 60¢ 10¢ 10¢

Extra, 50¢ 10¢ 60¢

N. Y. B. & P. Co., Standard, 60¢ 10¢ 5¢

N. Y. B. & P. Co., Empire, 70¢

N. Y. B. & P. Co., Salamander,

per lb 65¢, 30¢

Jenkins' Standard, per lb 80¢, 35¢

Miscellaneous—

American Packing, 10¢ 11¢ 11¢

Russia Packing, 14¢ 14¢ 14¢

Italian Packing, 15¢ 14¢ 14¢

Cotton Packing, 15¢ 17¢ 17¢

Jute, 7¢ 8¢ 8¢

Padlocks—

See Locks.

Pails—**Galvanized Iron—**

Quarts, 10 12 14

Hill's Light Weight, per doz. \$2.75 3.00 3.25

Hill's Heavy Weight, per dz. 3.00 3.25 3.75

Whiting's, 2.75 3.00 3.25

Sidney Shephard & Co., 2.80 3.00 3.40

Iron Clad, 2.75 3.00 3.25

Fire Buckets, 2.75 3.25 3.50

Buckets, see Well Buckets.

Indurated Fibre Ware—25¢

Star Pails, 12 qt., per doz. \$6.00

Fire, Stable and Milk, 14 qt., per doz. \$7.80

Standard Fibre Ware—

Plain, Deer'd

Water Pails, 12 qt., per doz. \$4.00 \$4.50

Dairy Pails, 14 qt., per doz. 4.50 5.00

Fire Pails, No. 1, 12 qt., per doz. 5.00

Fire Pails, No. 2, 14 qt., per doz. 4.50

Pencils—

Faber's Carpenters', high list 50¢

Faber's Round Gilt, per gro. \$5.25

Dixon's Lead, per gro. \$4.50

Dixon's Lumber, per gro. \$6.75

Dixon's Carpenters', 40¢ 10¢

Picks—

Railroad or Adze Eye, 5 to 6, \$12.00;

6 to 7, \$13.00, 50¢ 10¢ 50¢ 10¢ 5¢

Picture Nails—

Brass Head, Sargent's list, 50¢ 10¢ 10¢

Brass Head, Combination list, 50¢ 10¢

Porcelain Head, Sargent's list, 50¢ 10¢ 10¢

Porcelain Head, Combination list, 40¢ 10¢

Niles' Patent, 40¢

Pinking Irons, per doz 65¢ net

Pipe, Wrought Iron—

List March 23, 1887.

1 1/4 and under, Plain, 50¢

1 1/4 and under, Galvanized, 42¢ 4¢

1 1/2 and over, Plain, 62¢ 4¢

1 1/2 and over, Galvanized, 50¢

Boiler Tubes, Iron, 52¢ 4¢

1 1/4 and under, 57¢ 4¢

Planes and Plane Irons—**Wood Planes—**

Molding, 50¢ 5¢ 50¢ 10¢

Bench, First Quality, 60¢ 10¢ 60¢ 10¢

Bench, Second Quality, 60¢ 10¢ 60¢ 10¢

Bailey's (Stanley R. & L. Co.), 40¢ 10¢

Iron Planes—

Bailey's (Stanley R. & L. Co.), 40¢ 10¢

Miscellaneous Planes (Stanley R. & L. Co.), 20¢ 10¢

Victor Planes (Stanley R. & L. Co.), 20¢ 10¢

Steele's Iron Planes, 35¢ 35¢ 5¢

Meriden Mal. Iron Co., 30¢ 10¢ 30¢ 10¢ 10¢

Davis's Iron Planes, 30¢ 10¢ 30¢ 10¢ 10¢

Birmingham Plane Co., 50¢ 50¢ 5¢

Gage Tool Co.'s Self-Setting, 20¢ 10¢

Chaplin's Iron Planes, 40¢ 40¢ 5¢

Sargent's, 30¢ 10¢ 30¢ 10¢ 10¢

Plane Irons—

Plane Irons, Butcher's, \$5.00 to \$5.25 to 2¢

Plane Irons, Buck Bros., 30¢

Plane Irons, Auburn Tool Co., "This-

tle", 40¢

Sandusky Tool Co., 30¢

Single and Cut, 40¢

Double, 40¢

L. & J. J. White, 25¢

Pliers and Nippers—

Button's Patent, 30¢ 10¢ 40¢

Hall's No. 2, 5 in., \$13.50, No. 4, 7 in.,

\$21.00 per doz., 20¢ 10¢ 30¢

Hudson & Beckley Mfg. Co., 50¢ 50¢ 10¢

Gas Pliers, Custer's Nickel Plated, 60¢ 5¢

Eureka Pliers and Nippers, 40¢

Russell's Parallel, 25¢

P. S. & W. Cast Steel, 50¢

P. S. & W. Tinner's Cutting Nippers, add 6¢ dis 10¢

Carew's Pat. Wire Cutters, 20¢

Morrill's Parallel, per doz. \$12.00, 30¢ 5¢

Cronk's 8 in., \$15.00; 10 in., \$21.00,

40¢ 40¢ 5¢

Plumbs and Levels—

Regular List, 70¢ 10¢ 70¢ 10¢ 10¢

Disston's, 40¢ 10¢

Pocket Levels, 70¢ 10¢ 70¢ 10¢ 10¢

Davis Iron Levels, 30¢

Davis' Inclinator, 10¢ 10¢

Polish, Metal.

Prestoline, 20¢ 10¢

Krestoline Paste, 33¢ 4¢

Gaston's Silver Compound, 33¢ 4¢

Pokes, Animal—

Bishop's I. X. L., per doz \$6.50

Bishop's O. K., per doz \$5.50

Bishop's Pioneer, per doz \$3.75

Bishop's American, per doz \$3.00

Poppers, Corn—

Round or Square, 1 qt., per gr \$12.00 to 15.00

Round or Square, 2 qt., per gr \$25.00 to 26.00

Post Hole and Tree Augers and Diggers—

Samson Post Hole Digger, per doz \$30.00,

25¢ 10¢

Fletcher Post Hole Augers, per doz \$30, 20¢

Eureka Diggers, per doz \$16.00 to 17.00

Leed's, per doz \$8.00 to 9.00

Vaughan's Post Hole Auger, per doz

\$13.00 to 14.00

Kohler's Little Giant, per doz \$18.00

Kohler's Hercules, per doz \$15.00

Kohler's New Champion, per doz \$9.00

Schneider, per doz \$18.00

Ryan's Post Hole Diggers, per doz \$24.00

Cronk's Post Bars, per doz \$60.00,

50¢ 50¢ 50¢ 10¢ 10¢

Gibbs Post Hole Digger, per doz \$30.00, 50¢

Imperial, per doz \$15.00, 45¢

Potato Parers—

White Mountain, per doz \$5.00 to 5.50

Antrim Combination, per doz \$3.00

Rooster, per doz \$13.50

Pruning Hooks and Shears—

Disston's Combined Pruning Hook and

Saw, per doz \$18.00, 20¢ 10¢

Disston's Pruning Hook, per doz \$12.00,

20¢ 10¢

E. S. Lee & Co.'s Pruning Tools, 40¢

Pruning shears, Henry's Pat., per doz

\$3.75 to 4.00 net

Henry's Pruning Shears, per doz \$4.25 to

4.50 net

Wheeler, M. & C. Co.'s Combination,

per doz \$12.00, 20¢

Dunlap's Saw and Chisel, per doz \$8.50, 30¢

J. Mallinson & Co., No. 1, \$5.25; No. 2, 7.25

Pulleys—

Hot House, Awning, &c., 60¢ 10¢

Japanned Screw, 60¢ 10¢

Brass Screw, 60¢ 10¢

Japanned Slide, 60¢ 10¢

Japanned Clothes Line, 60¢ 10¢

Empire Sash Pulley, 55¢ 60¢

Moore's Sash, Anti-Friction, 50¢ 50¢

Hay Fork, Solid Eye, \$4.00; Swivel,

\$4.50, 50¢ 10¢ 50¢ 10¢ 10¢

Hay Fork, "Anti-Friction," 5 in. Solid,

\$5.70, 50¢

Hay Fork, "F" Common and Pat.

Bushed, 30¢

Hay Fork, Parboiled Pat. Iron, 30¢

Hay Fork, Reed's Self-Lubricating, 60¢

Shade Rack, 45¢

Tackle Blocks, see Blocks

Moore's Anti-Friction 5 in. Wheel, per doz

\$12.00, 40¢

Pumps—

Cistern, Best Makers, 50¢ 10¢ 60¢

Pitcher Spout, Best Makers, 60¢ 10¢ 60¢

CURRENT METAL PRICES.

JULY 31, 1889.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market reports.

IRON AND STEEL.

Bar Iron from Store.

Common Iron:	
3/4 to 2 in. round and square.	1 lb 1.90 @
1 to 6 in. x 3/4 to 1 in.	
Refined Iron:	
3/4 to 2 in. round and square.	1 lb 2.00 @ 2.10¢
1 to 4 in. x 3/4 to 1 1/4 in.	
4 1/2 to 6 in. x 3/4 to 1 in.	1 lb 2.20 @ 2.30¢
1 to 6 in. x 1 1/4 and 5-16	
Rods—3/4 and 1-1/2 round and sq.	1 lb 2.10 @ 2.20¢
Bands—1 to 6 x 3-16 to No. 12	1 lb 2.20 @ 2.30¢
"Burden Best" Iron, base price.	1 lb 3.00 @
Burden's "H. B. & S." Iron, base price.	1 lb 2.80 @
"Ulster"	1 lb 3.00 @
Norway Rods	4.00 @ 5.00¢

Merchant Steel from Store.

Open-Hearth and Bessemer Machinery.	
Toe Calk, Tire and Sleigh Shoe, base price in small lots.	2 1/2¢
Best Cast Steel, base price in small lots	5¢
Best Cast Steel Machinery, base price in small lots	5¢

Sheet Iron from Store.

Common American.	R. G.	Cleaned.
10 to 16	1 lb 2.75 @ 2.80¢	3.25 @
17 to 20	1 lb 2.85 @ 3.00¢	3.25 @ 3.50¢
21 to 24	1 lb 3.00 @ 3.10¢	3.50 @
25 and 26	1 lb 3.20 @	3.50 @
27	1 lb 3.35 @ 3.37 1/2¢	3.75 @
28	1 lb 3.50 @	4.00 @

Galv'd, 14 to 20.	1 lb 4.50 @	4.88 @
Galv'd, 1 to 24.	1 lb 4.87 1/2 @	4.75 @
Galv'd, 25 to 26.	1 lb 5.25 @	5.12 @
Galv'd, 27.	1 lb 5.62 1/2 @	5.48 @
Galv'd, 28.	1 lb 6.00 @	5.85 @
Patent Planished.	1 lb 10¢	H. 8¢
Russia.	1 lb 9 1/4¢	H. 7¢
American Cold Rolled B. B.	1 lb 5¢	6¢
Craig Polished Sheet Steel.	1 lb 5¢	6¢

English Steel from Store.

Best Cast.	1 lb 15¢
Extra Cast.	1 lb 16 1/2¢
Swaged, Cast.	1 lb 16¢
Best Double Shear.	1 lb 15¢
Blister, 1st quality.	1 lb 12¢
German Steel, Best.	1 lb 10¢
2d quality.	1 lb 9¢
3d quality.	1 lb 8¢
Sheet Cast Steel, 1st quality.	1 lb 15¢
2d quality.	1 lb 14¢
3d quality.	1 lb 12 1/2¢

METALS.

Banca, Pigs.	Per lb 22¢
Straits, Pigs.	21 1/2¢
English, Pigs.	22¢
Straits in Bars.	23¢

Tin Plates.

Charcoal Plates.—Bright.	Per box.
Melyn Grade.	
IC, 10 x 14.	\$5.75 @ \$6.00
IC, 12 x 12.	6.00 @ 6.25
IC, 14 x 20.	5.75 @ 6.00
IC, 20 x 28.	12.00 @ 12.50
IX, 10 x 14.	7.25 @ 7.50
IX, 12 x 12.	7.50 @ 7.75
IX, 14 x 20.	7.25 @ 7.50
IX, 20 x 28.	15.00 @ 15.50
DC, 12 1/2 x 17.	5.50 @ 5.75
DX, 12 1/2 x 17.	7.00 @ 7.25
Call and Grade.	
IC, 10 x 14.	5.75 @ 6.00
IC, 12 x 12.	6.00 @ 6.25
IC, 14 x 20.	5.75 @ 6.00
IX, 10 x 14.	7.25 @ 7.50
IX, 12 x 12.	7.50 @ 7.75
IX, 14 x 20.	7.25 @ 7.50
IX, 20 x 28.	15.00 @ 15.50
DC, 12 1/2 x 17.	5.50 @ 5.75
DX, 12 1/2 x 17.	7.00 @ 7.25
Hayway Grade.	
IC, 10 x 14.	5.00 @ 5.12 1/2¢
IC, 12 x 12.	5.12 1/2¢ @ 5.25
IC, 14 x 20.	5.00 @ 5.12 1/2¢
IX, 10 x 14.	6.00 @
IX, 12 x 12.	6.25 @
IX, 14 x 20.	6.00 @
IX, 20 x 28.	12.00 @
DC, 12 1/2 x 17.	4.75 @ 5.00
DX, 12 1/2 x 17.	5.75 @ 6.00

Coke Plates.—Bright.

Steel Coke.—IC, 10 x 14, 14 x 20.	\$4.75 @ \$5.00
10 x 20.	7.25 @ 7.50
20 x 28.	9.75 @ 10.25
IX, 10 x 14, 14 x 20.	5.50 @ 5.75
IC, 10 x 14, 14 x 20.	4.40 @ 4.60
Dean Grade.—IC, 14 x 20.	\$4.85 @ \$4.62 1/2¢
20 x 28.	8.75 @ 9.25
IX, 14 x 20.	5.40 @ 5.62 1/2¢
20 x 28.	11.00 @ 11.37 1/2¢
Abecarne Grade.—IC, 14 x 20.	4.25 @ 4.50
20 x 28.	8.45 @ 9.00
IX, 14 x 20.	5.25 @ 5.50
20 x 28.	10.50 @ 10.80

Tin Boiler Plates.

IXX, 14 x 26.	112 sheets @ \$12.50 @ \$12.75
IXX, 14 x 28.	112 sheets @ 12.75 @
IXX, 14 x 31.	112 sheets @ 14.25 @

Copper.

Duty: Pig, Bar and Ingot, 4¢; Old Copper, 3¢
 1/2 lb. Manufactured (including all articles of which Copper is a component of chief value),
 15¢ ad valorem.

Ingot.

"Anchor" Brand.	@ 13 1/2¢
"Bertha"	@ 12 1/2¢

Sheet and Bolt.

Prices adopted by the Association of Copper Manufacturers of the United States, May 23, 1889, being quotations for all sized lots.

Not wider than	Not longer than	And longer than	Weights per square foot and prices per pound.							
			Over 64 oz.	32 to 64 oz.	16 to 32 oz.	14 to 16 oz.	12 to 14 oz.	10 to 12 oz.	8 to 10 oz.	Less than 8 oz.
30—72			30	30	30	21	22	23	26	28
30—96			30	30	30	21	22	23	26	28
36—96			30	30	30	21	22	23	26	28
48—96			30	30	30	21	22	23	26	28
48—120			30	30	30	21	22	23	26	28
60—96			30	30	30	21	22	23	26	28
60—120			30	30	30	21	22	23	26	28
84—96			21	22	23					
84—120			21	22	23					
Over 84 in. wide			23	25						

All Bath Tub Sheets. 16 oz. 14 oz. 12 oz. 10 oz.
 Per pound. \$0.23 0.25 0.27 0.30
 Bolt Copper, 3/4 inch diameter and over, per pound. 10¢

Circles, 60 inches in diameter and less, 3 cents per pound advance over lowest prices of Sheet Copper of the same thickness.

Circles, over 60 inches diameter, up to 96 inches diameter, inclusive, 5 cents per pound advance over lowest prices of Sheet Copper of the same thickness.

Circles, over 96 inches diameter, 6 cents per pound advance over lowest prices of Sheet Copper of the same thickness.

Segment and Pattern Sheets, 3 cents per pound advance over price of sheets required to cut them from.

Cold or Hard Rolled Copper, 14 ounces per square foot and heavier, 1 cent per pound over the foregoing prices.

Cold or Hard Rolled Copper, lighter than 14 ounces per square foot, 2 cents per pound over the foregoing prices.

Copper Bottoms, Pits and Flats.

Per pound.

14 ounce to square foot and heavier. 23¢

12 ounce and up to 14 ounce to square foot. 24¢

10 ounce and up to 12 ounce. 26¢

Circles less than 8 inches diameter 2 cents per pound additional.

Circles over 13 inches diameter are not classed as Copper Bottoms.

Tinning.

Tinning sheets on one side, 10, 12 and 14 x 48 each. 8¢

Tinning sheets on one side, 30 x 60 each. 30¢

For tinning boiler sizes, 9 in. (sheets 14 in. x 60 in.), each. 15¢

For tinning boiler sizes, 8 in. (sheets 14 in. x 56 in.), each. 12¢

For tinning boiler sizes, 7 in. (sheets 14 in. x 52 in.), each. 12¢

Tinning sheets on one side, other sizes, per square foot. 2¢

For tinning both sides double the above prices.

Planished Brass and Copper.

14 x 48.

14 and 16 oz. and heavier. 31¢. By the case. 30¢ per lb 12 oz. and lighter. 33¢. By the case. 32¢ per lb

24 x 48 and 20 x 60.

14 and 16 oz. and heavier. 44¢. 12 oz. 37¢ per lb

Seamless Brass and Copper Tubes.

O. G.	N. G.	3/8	1/2	3/4	1	1 1/2
8-14	6-12	35	31	28	27	26
15	13	36	31	29	28	27
16	14	37	32	30	29	28
17	15	38	33	31	30	29
18	16	40	34	32	31	30
19	17	41	35	33	32	31
20	18-19	42	37	35	34	33
21	20	44	39	37	36	35
22	21	46	40	38	37	36
23	22	48	42	40	39	38
24	23	51	44	42	41	40
25	24	54	47	44	43	42

Copper, Bronze and Gliding Tube, 2¢ per lb additional.

Braced Brass Tubing. (To No. 20, inclusive.)

Above 5-16 inch to 3 inch, inclusive. 35¢

Plain, above 3 inch. 45¢

Plain, 5-16 inch. 45¢

Plain, 3-16 inch. 60¢

Plain, 1/2 inch. 81.00

Fancy Tubing, Brass, to No. 20, inclusive. 45¢ per lb

Roll and Sheet Brass.

Discount from list. 25 @ 30 %

High Brass Rods.

Over 1 inch diameter. 27¢

1/2 inch to 1 inch diameter, both inclusive. 24¢

No. 8 and less than 1/2 inch diameter. 26¢

Smaller than No. 8. 30¢

Hexagon, Octagon and Square, 2¢ per lb advance over Round Rods.

Spelter.

Duty: Pig, Bars and Plates, \$1.50 @ 100 lb.

Western Spelter 5 1/4¢ @ 6¢

"Bergenport" 8¢

"Bertha" 7 1/2¢ @ 8¢

Zinc.

Duty: Sheet, 2 1/2¢ per lb.
 600 lb casks. 6 1/4¢
 Per lb. 7 1/2¢

Lead.

Duty: Pig, \$2 per 100 lb. Old Lead, 2¢ per lb. Pipe and Sheets, 3¢ per lb.
 American Newark. 4 1/4¢
 Bar. 4 1/4¢
 Pipe, subject to trade discount. 6¢
 Tin-Lined Pipe, subject to trade discount. 15¢
 Block Tin Pipes, subject to trade discount. 45¢
 Sheet, subject to trade discount. 6 1/2¢

Solder.

1/2 @ 1/4 (Guaranteed). 14 1/2¢
 Extra Wiping. 12 1/2¢
 The prices of the many other qualities of Solder in the market indicated by private brands vary according to composition.

Antimony.

Cookson. 17¢ @ 17 1/2¢
 Hallett's. 16¢ @ 16 1/2¢

Fittings.

Cast Iron Fittings, Black and Galvanized. 75¢ @ 80¢
 Cast Iron Fittings, Bushings and Plugs. 80¢
 Cast Iron Fittings, Flanges. 75¢ @ 80¢
 Malleable Iron Bushings. 80¢ @ 80¢
 Malleable Iron Unions. 70¢ @ 70¢
 Malleable Iron American Unions. 55¢
 Malleable Iron Unions, Keystone. 55¢
 Wrought-Iron Nipples. 75¢ @ 80¢
 Wrought-Iron Couplings. 70¢
 Wrought-Iron Long Screws. 70¢ @ 70¢
 Casing Fittings. 60¢
 Malleable Iron Fittings. 10¢ @ 10¢

Valves, Cocks, &c.

Iron Body Valves. 70¢
 Throttle Valves, Iron Body. 70¢
 All Iron Valves. 65¢
 Compression Gauge Cocks. 60¢
 Mississippi Gauge Cocks. 60¢
 Register Gauge Cocks. 65¢ @ 65¢
 Air Cocks and Radiator Air Cocks. 65¢ @ 65¢
 Steam Gauge Cocks. 60¢
 Oil Cups, Plain, Elbow, new pattern, T and Lever Handle. 65¢ @ 65¢
 Globe Oil Cups. 55¢
 Common Lubricators. 65¢ @ 65¢
 Lubricators with Air Cocks. 65¢ @ 65¢
 Iron Body Lubricators. 60¢
 Steam Whistles. 65¢
 Whistle Valves. 65¢
 Water Gauges. 65¢
 Brass Expansion Joints. 55¢
 Pump Valves. 55¢
 Soldering Unions. 65¢
 Soldering Nipples. 70¢
 Brass Unions (Union Joints). 65¢
 Radiator Nipples. 60¢
 Fusible Plugs. 60¢
 Oil Pumps. 55¢
 Self-Acting Air Valves. 65¢
 Vacuum Valves. 55¢
 Steam Swing Joints. 55¢
 Iron Strainers. 55¢
 Jenkins' Iron Body Valves, except Gate Valves. 60¢ @ 10¢
 Jenkins' All-Iron Valves, except Gate Valves. 60¢
 Jenkins' Iron Body Gate Valves. 55¢
 Jenkins' All-Iron Gate Valves. 55¢
 Iron Cocks, all iron. 65¢
 Iron Cocks, with Brass Plug. 65¢
 Brass Globe, Angle and Cross Valves. 65¢
 Brass Globe Valves, Finished. 45¢
 Brass Globe and Angle Valves, hose outlet. 65¢
 Brass Garden Hose Valves. 65¢
 Brass Caps for Hose Valves. 60¢
 Brass Horizontal, Vertical and Angle Check Valves. 65¢
 Brass Safety Valves. 65¢
 Brass Safety Valves, low pressure. 65¢
 Brass Safety Valves, low pressure, with balance weight. 65¢
 Brass Butterfly Valves. 55¢
 Brass Throttle Valves. 55¢
 Brass Radiator Valves. 65¢
 Brass Radiator Valves, Jenkins'. 65¢
 and Check Valves. 65¢
 Brass Jenkins' Gate Valves. 50¢
 Brass Steam Cocks. 60¢
 Brass Gas, Meter and Union Meter Cocks. 60¢
 Brass Fittings, Rough. 60¢
 Brass Fittings, Finished. 25¢
 Brass Bushings. 60¢

Plumbers' Brass Work.

Ground Key Work, Rough. 60¢
 Ground Key Work, Finished. 55¢
 Compression Work. 60¢ @ 60¢
 Compression Work, Grundy, Heavy Pattern. 55¢
 Chain Stays. 60¢
 Sink or Bath and Wash Tray Plugs. 60¢
 Basin Clamps. 55¢

FRENCH GLASS.

Per Box 50 feet.

Sizes		Single.			
		1st.	2d.	3d.	4th.
		EFH	IEH	HH	HB
25	6 x 8 to 10 x 15.....	\$10.50	\$9.00	\$8.50	\$8.00
40	11 x 14 to 16 x 24.....	11.50	10.75	10.25	9.75
50	18 x 22 to 20 x 30.....	15.50	14.00	13.00	12.50
54	15 x 36 to 24 x 36.....	16.50	15.00	13.50	.....
60	36 x 28 to 24 x 36.....	17.75	16.25	14.75	.....
70	26 x 36 to 26 x 44.....	19.00	17.50	15.25	.....
80	26 x 46 to 20 x 50.....	21.00	19.50	17.00	.....
94	30 x 52 to 30 x 54.....	22.00	20.25	18.00	.....
30	30 x 56 to 34 x 56.....	23.00	21.25	19.00	.....
34	34 x 58 to 34 x 60.....	24.00	22.75	21.00	.....
100	36 x 60 to 40 x 60.....	26.50	24.50	23.00	.....